City Council Introduction: **Monday**, March 21, 2005
Public Hearing: **Monday**, March 28, 2005, at **5:30** p.m.

Bill No. 05R-65

FACTSHEET

TITLE: **COMPREHENSIVE PLAN AMENDMENT NO. 05001,** by the Interim Director of the Public Works & Utilities Department and the Lower Platte South Natural Resources District, to amend the 2025 Lincoln/Lancaster County Comprehensive Plan, to include the Stevens Creek Watershed Master Plan as a subarea plan, and to adjust the Future Land Use Plan accordingly.

STAFF RECOMMENDATION: Approval.

SPONSOR: Planning Department

BOARD/COMMITTEE: Planning Commission
Public Hearing: 03/02/05
Administrative Action: 03/02/05

RECOMMENDATION: Approval, with two amendments (9-0: Sunderman, Krieser, Taylor, Larson, Carroll, Marvin, Carlson, Pearson and Bills-Strand voting 'yes').

FINDINGS OF FACT:

1. Adopting the proposed Stevens Creek Watershed Master Plan as a subarea plan in the 2025 Lincoln-Lancaster County Comprehensive Plan will provide long term planning tools and improvement projects to address water quality, flood management and stream stability to provide guidance for sustainable urban growth in the watershed. The Executive Summary is attached as pp.24-34, and is also being provided under separate cover with color maps.

2. The staff recommendation of approval is based upon the "Analysis" as set forth on p.5-6, concluding that the proposed Stevens Creek Watershed Master Plan is in conformance with the 2025 Lincoln-Lancaster County Comprehensive Plan.

3. The specific amendments to the Comprehensive Plan being proposed are found on p.6.

4. The minutes of the public hearing before the Planning Commission are found on p.8-19. The applicant presentation is found on p.8-10. Public testimony is found on p.10-15, with rebuttal testimony by the applicant team on p.15-17. The public testimony raised concerns about the projected cost estimates to the developers and property owners; why Stevens Creek as opposed to other areas within the city needing floodplain protection; the cost of implementing the master plan to the city; and protection of the Stevens Creek Stock Farm. Much of the testimony focused on the site specific structural BMP (best management practices), which includes a sediment forebay and outlet structure on detention ponds to address the smaller rain storms that cause the greatest impact to the integrity of streams.

5. The record consists of two letters in support (p.35-38); a letter from Danny Walker on behalf of the South Salt Creek Community Organization, stressing the need for floodplain protection in South Salt Creek and other areas within the city (p.39-40); and a report submitted by John Layman, and issued by Robert D. Nielsen of Applied Soil Geography, LLC, on the "Stevens Creek Watershed and the Effects of the Proposed Flood Standards for New Growth Areas" is found on p.41-51 (the testimony of Mr. Layman is found on p.14-15).

6. On March 2, 2005, the Planning Commission agreed with the staff recommendation and voted 9-0 to recommend approval, with two amendments as follows:

   #1 Bills-Strand then clarified that the motion to amend is that all low cost options will be looked at and given an opportunity to be chosen by the developer, if it meets the (water) quality needs, seconded by Larson and carried 6-3: Sunderman, Krieser, Larson, Carroll, Carlson and Bills-Strand voting 'yes'; Taylor, Marvin and Pearson voting 'no'.

   #2 Carlson moved to amend that the approximate location of the sewer line on the map on ES5 be amended such that it is not shown to be running across the historic prairie, seconded by Bills-Strand. After further discussion, Carlson stated that he did not want to change his motion but suggested that if the motion carries, it will be up to the applicant to move it or delete it from the map. Motion to Amend #2 carried 7-2: Sunderman, Krieser, Larson, Marvin, Carlson, Pearson and Bills-Strand voting 'yes'; Taylor and Carroll voting 'no'.

7. The proposed text and map revisions to the Master Plan incorporating the Planning Commission recommendation are set forth on pp. 2-3.

8. This Comprehensive Plan Amendment is also scheduled for public hearing and action by the Lancaster County Board of Commissioners on March 29, 2005.

FACTSHEET PREPARED BY: Jean L. Walker **DATE**: March 15, 2005
REVIEWED BY:_____ **DATE**: March 15, 2005
REFERENCE NUMBER: FS\CC\2005\CPA05001

PROPOSED TEXT REVISION TO THE MASTER PLAN
TO INCORPORATE MOTION TO AMEND #1
BY PLANNING COMMISSION

MOTION TO AMEND #1 (Mary Bills-Strand) that "all low cost options will be looked at and given an opportunity to be chosen by the developer, if it meets the (water) quality needs."

Revise the Executive Summary by adding a sentence to the end of the first paragraph on Page ES-8 as follows:

Two alternative methods were generated to install BMPs in the watershed based on a range of approaches discussed with the Citizen Advisory Committee. The methods included 1) Regional Structural BMPs, and 2) Site-Specific Structural BMPs. Advantages and disadvantages for each method were evaluated, which included an analysis of cost and effectiveness. The evaluation is described in Section 6 of the Master Plan and resulted in selecting site-specific structural BMPs as the recommended alternative. This method provides a cost-effective approach to maintain the integrity of the natural streams, preserve water quality, and can be efficiently integrated in the City's current development standards. The Master Plan includes guidance for revisions to the City's design standards for site-specific BMPs, which would be applied consistently to all new developments. Section 7 of the Master Plan provides further details on how to integrate structural BMPs into new development sites. When revised design standards are drafted, all low cost options providing the same or greater water quality benefits should be considered and included as options for the developer.

Revise Section 7, "Drainage Criteria Manual Review," to add a sentence to the first paragraph in 7.3, "Alternative Design Approaches," on page 7-19 as follows:

The design approach described above combines the water quantity (2-, 10-, and 100-year controls) requirements with the water quality component (structural BMP) into a single integrated facility. This integrated approach is one of many design concepts that can be employed to achieve the desired results. When revised design standards are drafted, all low cost options providing the same or greater water quality benefits should be considered and included as options for the developer. The following paragraphs provide other alterative design approaches that can be implemented to achieve the same overall goals and objectives.

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PROPOSED AMENDMENT TO FIGURE 10-1 OF THE MASTER PLAN
TO INCORPORATE MOTION TO AMEND #2
BY PLANNING COMMISSION

MOTION TO AMEND #2 (Jon Carlson) that "the approximate location of the sewer line on the map on ES-5 be amended such that it is not shown to be running across the historic prairie."

Revise the Watershed Planning Map on Figure ES-5 and Figure 10-1 so that the future wastewater trunk line, which is shown on the map as a reference for potential future infrastructure, is noted to be determined in the future in the vicinity of Stevens Creek Stock Farm, as shown on the attached:

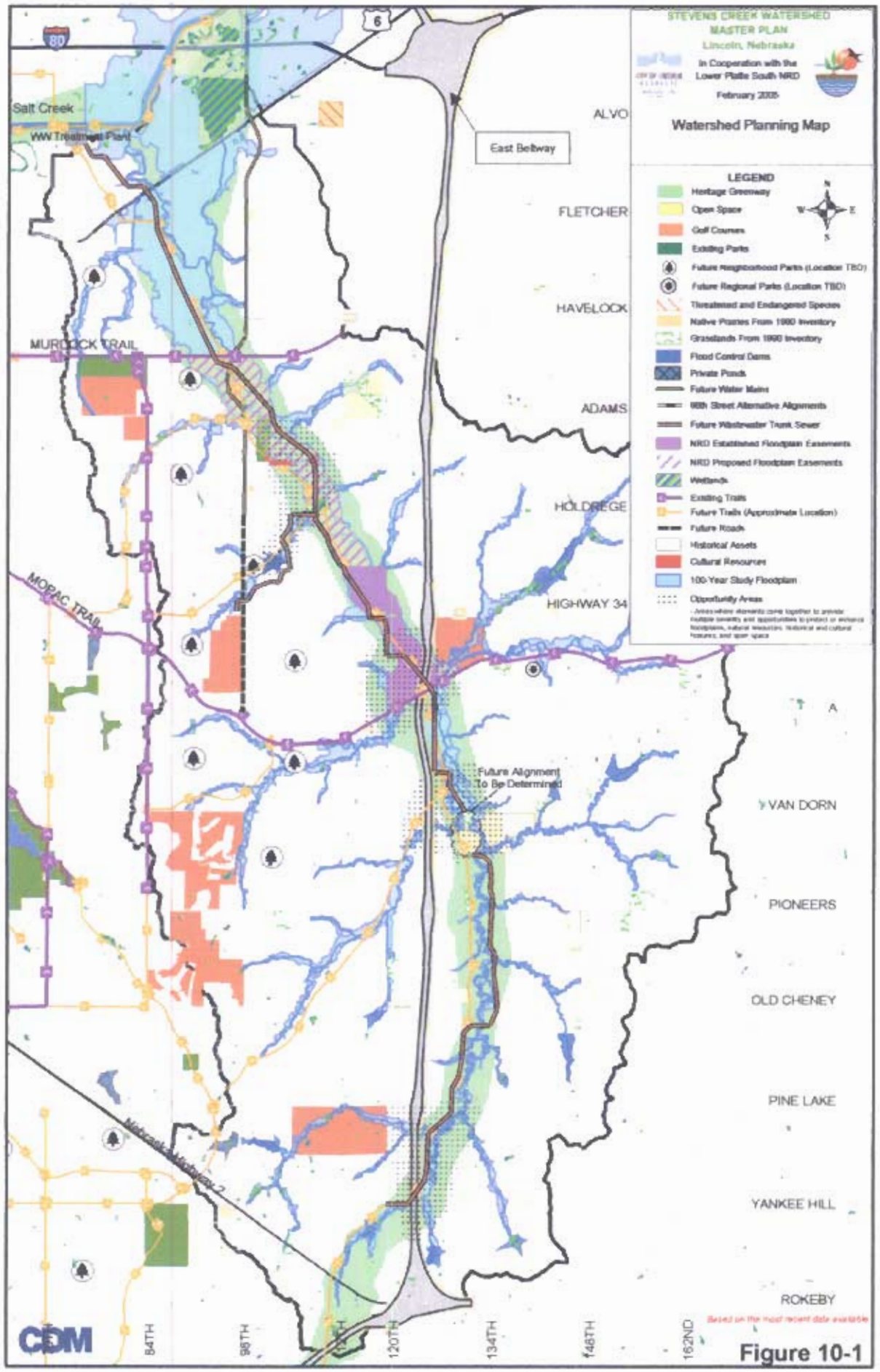
STEVENS CREEK WATERSHED
MASTER PLAN
Lincoln, Nebraska
In Cooperation with the
Lower Platte South NRD
February 2005
Watershed Planning Map
LEGEND
Heritage Greenway
Open Space
Golf Courses
Existing Parks
Future Neighborhood Parks (Location TBD)
Future Regional Parks (Location TBD)
Threatened and Endangered Species
Native Prairies From 1990 Inventory
Grasslands From 1990 Inventory
Flood Control Dams
Private Ponds
Future Water Mains
98th Street Alternative Alignments
Future Wastewater Trunk Sewer
NRD Established Floodplain Easements
NRD Proposed Floodplain Easements
Wetlands
Existing Trails
Future Trails (Approximate Location)
Future Roads
Historical Assets
Cultural Resources
100-Year Study Floodplain
Opportunity Areas
Areas where elements come together to provide multiple benefits and opportunities to protect or enhance floodplains, natural resources, historical and cultural features, and open space
N
W
E
S
Salt Creek
WW Treatment Plant
East Beltway
ALVO
FLETCHER
HAVELOCK
ADAMS
HOLDREGE
HIGHWAY 34
MURDOCK TRAIL
MOPAC TRAIL
Future Alignment
To Be Determined
VAN DORN
PIONEERS
OLD CHENEY
PINE LAKE
YANKEE HILL
ROKEBY
Nebraska Highway 2
84TH
98TH
120TH
134TH
146TH
162ND
CDM
Based on the most recent data available

Figure 10-1

LINCOLN /LANCASTER COUNTY PLANNING STAFF REPORT
for March 2, 2005 Planning Commission Meeting

P.A.S.: Comprehensive Plan Amendment #05001 Stevens Creek Watershed Master Plan

PROPOSAL: To amend the 2025 Lincoln-Lancaster County Comprehensive Plan to adopt the proposed "Stevens Creek Watershed Master Plan," including associated amendments to the Future Land Use Map of the Plan.

CONCLUSION: The proposed Stevens Creek Watershed Master Plan is in conformance with the 2025 Lincoln-Lancaster County Comprehensive Plan. The Stevens Creek Watershed Master Plan will provide long term planning tools and improvement projects to address water quality, flood management, and stream stability to provide guidance for sustainable urban growth in the watershed.

RECOMMENDATION: Approval of the proposed amendment

GENERAL INFORMATION:

LOCATION: A 55 square mile stream drainage basin located generally between Nebraska Highway 2 on the south, Cornhusker Highway on the north, the City of Lincoln corporate limits on the west and the east ridge line of the basin to about 162nd street.

EXISTING LAND USE: Mainly rural farming and acreages with small locations of commercial, industrial, trails and parks, including the unincorporated village of Walton.

ASSOCIATED APPLICATIONS: None

HISTORY: See Subarea Plan for detailed history. The City Council has adopted the Stevens Creek Floodprone Area as "best available" flood information for local flood regulation purposes.

COMPREHENSIVE PLAN SPECIFICATIONS: The 2025 Comprehensive Plan for this area includes Lincoln growth Tiers I, II, and III and generally shows the subarea as Agriculture as well as future areas for Urban Residential, Industrial, Commercial, Green Space, and Public/ Semi-Public uses. Some of the relevant language of the Plan is:

Make "green space" an integral part of all environments. (Page F 57)

Integrate the "Core Resource Imperatives" and natural resources feature concepts into future city and county studies that implement the Comprehensive Plan. (Page F 63)

Develop a Watershed Management Master Plan for Lincoln and its future growth areas. Integrate existing neighborhoods and growth areas into watershed planning. (Pg F 79)

Utilize basin master plan recommendations and components as analysis tools to be referenced and compared with proposed development within the basin, and as a guide in the preparation of future capital improvement projects. (F 79)

Future master planning efforts for largely undeveloped basins will rely more heavily on pro-active better management practice (BMP) measures and the conservation of existing natural drainage features to most effectively manage stormwater and floodplains. Designs of human made features should seek to utilize bioengineering and other naturalized techniques, incorporating trail systems and other linear park features where possible. (Pg F 80)

ANALYSIS:

1. This amendment has two related parts proposed by the Public Works and Utilities Department and the Lower Platte South Natural Resources District (NRD):

   A. Adoption of the Stevens Creek Watershed Master Plan as an approved subarea plan of the Comprehensive Plan,

   B. Amend the Land Use Plan to change the designation of various areas into or out of Green Space or Agricultural Stream Corridor to reflect the location of the new 100 year flood prone area as identified in the Stevens Creek master plan.

2. This amendment would adjust the Land Use Map to designate the new floodprone area as "Green Space" or "Agricultural Stream Corridor" in order to encourage this area to remain predominately in open space uses in order to preserve the flood storage, flood conveyance and water quality benefits. This is consistent with the revisions to the Land Use Plan adopted with the SE Upper Salt Creek Watershed Plan to reflect the floodprone area designation. The Land Use Plan reflects the strategies of the Comprehensive Plan to designate future urban development outside of the floodplain and floodway.

   The current plan reflects the FEMA-mapped floodplain adopted in 1980. The floodprone areas adopted by the City Council as best available information in December of 2004 is a much more accurate representation of the floodplain, and includes mapping for tributaries to Stevens Creek which were previously unmapped. Thus areas now shown subject to flooding are designated as Green Space while areas removed from the floodplain are adjusted to reflect the appropriate urban land use designation.

3. The Stevens Creek Watershed Master Plan Subarea Plan is the third watershed master plan to come forward for adoption. Previously adopted plans include the Beal Slough and the Southeast Upper Salt Creek Master Plans. The Stevens Creek Master Plan involved a year and a half long process, including an extensive public outreach program that included three open houses, an advisory committee, two bus tours, meetings with special interest groups, a web site and a newsletter.

4. There are four elements of the Stevens Creek Watershed Master Plan; Floodplain Management Tools; including

   1) Updated floodplain and floodway maps.

2) Eleven proposed Capital Improvement projects to address 26 identified problem areas. These are proposed to be used as a reference and guide by the City, County, and the Natural Resources District to work cooperatively toward project implementation as they formulate their respective CIPs and Long Range Implementation Plan.

3) Site specific Best Management Practices (BMPs) designed to address the off -site impacts from urban development. The primary recommendation is to enhance the current detention pond standards to address the water quality storm by adding a forebay and outlet structure adjustments.

4) A designation of four Opportunity Areas where several elements of current plans, policy or projects overlap to create an opportunity for an integrated approach with multiple benefits.

5. If adopted as a part of the Comprehensive Plan, appropriate amendments to the Design Standards to apply water quality BMP's would be processed. These design standard amendments would be applicable to all new development areas, not just the Stevens Creek basin.

PROPOSED AMENDMENT:

Amend the 2025 Lincoln-Lancaster County Comprehensive Plan as follows:

1. Amend the"Lincoln/Lancaster County Land Use Plan", figure on pages F23 and F25, to adjust the designation of 'Green Space" and "Agricultural Stream Corridor" to the 100 year floodprone area as shown on the attached map and to appropriately reclassify areas no longer in the floodplain.

2. Add the "Stevens Creek Watershed Master Plan, 2005" to the list of approved subarea plans on Page F 156.

3. Add a new section to the end of the Watershed Management section on page F 81 as follows:

   The following watershed studies are adopted in order to provide guidance to watershed management activities within the basin:

   - Stevens Creek Watershed Study and Flood Management Plan, 1998 (for rural watershed)
   - Beal Slough Stormwater Master Plan, May 2000
   - Southeast Upper Salt Creek Watershed Master Plan, 2003
   - Stevens Creek Watershed Master Plan, 2005

Prepared by:

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Planner

DATE: February 7, 2005

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or

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or

Mike DeKalb
Planning Department
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PUBLIC HEARING BEFORE PLANNING COMMISSION: March 2, 2005

Members present: Sunderman, Krieser, Taylor, Larson, Carroll, Marvin, Carlson, Pearson and Bills-Strand.

Staff recommendation: Approval.

Ex Parte Communications: None.

Mike DeKalb of Planning staff submitted a letter from Marilyn McNabb in support.

Proponents

1. Mike DeKalb of Planning staff introduced the proposed Comprehensive Plan Amendment, which amends the land use plan, amends the text to include the Stevens Creek Watershed Master Plan as a list of approved subarea plans; and amends the list of watershed management plans to include the Stevens Creek Watershed Master Plan.

With regard to the Land Use Plan, DeKalb explained that the greenways extend up the tributaries. The lands which abut the newly mapped floodplain move back and force and reflect what is beside them. The land use designations along the side stayed the same. The only little tweak is North 84th Street, north of Holdrege, where there was industrial on the west side. When we pulled back the floodplain, there was a narrow strip of nothing so it has been designated industrial across 84th Street to the east.

2. Glenn Johnson, general manager of the **Lower Platte South NRD** continued the presentation. Over the past 5-10 years, the NRD has been trying to develop a comprehensive watershed master plan for the entire city and for its future growth areas. This has been approached on a basin-by-basin process, including Beal Slough Watershed, followed by the Southeast Upper Salt Creek Basin. They are also working on Cardwell Branch on the southwest edge of the City.

Why the Stevens Creek Watershed? One of the main reasons is that it is one of those areas in the Comprehensive Plan that is shown for near term growth. The west side of the watershed is shown in the 25 year Tier I area for new growth. The opportunity to do master planning in advance of the development is really a very serious goal of the NRD. It enables us to do much more and be much more preventative, more creative and a lot more cost effective than going back in after the basin is already developed. This watershed had the advantage of a number of studies done previously. The planning tools and projects include flood management goals, water quality and stream stability, capital improvements projects for existing problems, and opportunity areas. The plan was developed by a project team of consultants working with the city and NRD.

3. Vicki Luther, Heartland Center for Leadership Development, discussed the citizen participation efforts on this plan. The role of Heartland Center was to design the public participation and to manage the events. A variety of methods and events were used so that people had several different opportunities to get information and to give information, ideas, raise concerns and ask questions. There was a 25-member citizen advisory committee; a survey was done; three open houses and stakeholder meetings were held; and there were two bus tours for elected and appointed officials. Electronic communication was also used by having a Web page about the project as well as eight newsletters with a circulation of 700. All of the public meetings were held out in a facility in the basin itself.

4. Pat O'Neill, of CDM, the project manager for the consultant team stated that they worked closely with the City, NRD and the County throughout the study process. The goal and objectives of the master plan are: floodplain management, with the objective to reduce future flooding potential; long term stream stability; preservation of water quality; and coordination of natural elements or natural features within the watershed with existing and future infrastructure within the watershed to provide areas of multiple opportunities for multiple benefits.

The Floodplain Management is the primary component, which acknowledges the updated FEMA floodplain maps which have been adopted by the City Council as the best available information. Until officially adopted by FEMA, these areas are called "flood prone areas".

The Long-Term Stream Stability and Preservation of Water Quality component builds upon existing standards and projects. Two major pieces are improvement projects to address some of the existing problems that have been identified; another component is site specific structural BMPs -- ways to offset adverse impacts of future development. There are eleven CIP improvement projects which have been identified as critical areas to address to avoid more expensive projects in the future.

The urbanization process concludes that the smaller rain storms cause the greatest impact to the integrity of our streams. To address the smaller storms, structural best management practices (BMPs) have been considered, i.e. constructing facilities that slow down the runoff and remove pollutants from the stormwater. The plan is recommending site specific structural BMPs, which include a sediment forebay and outlet structure on detention ponds.

5. Nicole Fleck-Tooze of Public Works & Utilities described the site specific BMP relative to public and private responsibilities, i.e. who should bear the cost for offsetting impacts to water quality and stream stability caused by future urbanization? A cost- share concept was developed as part of this approach, assuming a private and a public responsibility. Detention ponds are already required for new development to provide flood control benefits. The cost of the BMP is estimated at $210 per acre of drainage area. This assumes that the city and the NRD share the cost. The additional cost for maintenance is estimated to be $500/year. Implementing this approach would mean revising the subdivision standards to require a $2500 escrow to cover those first five years of maintenance. There will need to be uniform design criteria developed. The city and NRD are committed to developing a pro-active education program.

Fleck-Tooze went on to explain that the fourth major element of the plan is the identification of opportunity areas, i.e. general planning locations within the watershed that highlight where natural elements and/or existing/future infrastructure come together. The plan identifies four general planning locations along the Salt Valley Greenway recognizing where the floodplain and drainage corridors overlap with the beltway, future trail system and natural resources.

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Public Testimony Given Prior to Applicant Presentation due to change in order of the Agenda:

1. Terri Cebuhar, 7333 Havelock Avenue, testified that she lives in an association of six homeowners and the floodplain comes 3' into her patio and into the common ground. She does not want that to happen. She believes the flood insurance will be a hardship.

2. Danny Walker, President of South Salt Creek Community Organization, testified as a life long resident of the South Salt Creek floodplain. During the past 30 years, very little has been done to improve floodplain protection in the boundaries of Salt Creek and its tributaries. Until very recently, the city had no idea of how much fill was being placed in the floodplain. There are city regulations that are very specific regarding floodplain fill contents. The city does not have any idea what is contained in the fill. Why all of a sudden a special interest in the Stevens Creek Watershed at a cost of one million dollars? Who set the priorities for this area over other floodplain areas within the boundaries of Lincoln? Who actually benefits in the long run? What happened to the recommendations put forth by the floodplain task force which overwhelmingly recommended new floodplain regulations for older existing areas? The floodplain boundaries have changed and widened in the majority of older residential and business properties located in the vast floodplain areas of Lincoln. Why the delay? He believes that the City/NRD, with assistance from the Corp of Engineers, have made a total mess out of the floodplain in Lincoln. It would seem that an area such as Salt Creek, with approximately 3,000 residents, plus over 200 plus businesses, would have priority over Stevens Creek. Is it politics, greed and legal counsel carrying more weight than the safety of low income families?

3. Barbara Bauer, 1224 South 8th Street, testified in opposition. Keno revenues are down; sales tax revenues are down; the city needs a new main library at a cost of 30 million dollars; the city wants to build a civic and convention center; the public schools are overcrowded; the streets are overused and under repaired; Antelope Valley is costing 240 million dollars and the federal money has dried up; the new Beltways planned around the city are going to cost 160 million; 48th & O needs redeveloped; City government already has a funding gap of 135 million for infrastructure. The city could barely scrape together $50,000 to give to State Fair Park. And now you want to open up a 55 square mile area to new development, 2/3 the size of the current city? Where will the money come from for the schools, libraries, police and fire? We already have some of the highest property tax rates in the country, even higher than California. This is not going to make housing more affordable. Why are we doing this? Because the developers want it open? If this is not approved, the proposed Waterford Estates and proposed new Wal-Mart will not be subject to the new rules? All the Commission has to do is turn them down until this city can afford to open that land properly, with all funding for schools, parks, police and fire in place. We have no money for this. We simply can't afford it, and it will drain money from other needed projects. It will now take 3-5 years to get 4th Street from A to J Street paved in her neighborhood. We have been begging for 20 years to have something done about the South Salt Creek floodplain, and all we get is, "we don't have any money to do that–you're not cost effective". There is no money for this, either, so don't do it. The farm and agriculture economy is what drives this state -- not our cities, and this again takes away prime farm land.

4. Rick Krueger referred to page 51 of the CDM report, which deals with the modifications to the design standards for the detention ponds. As he understands it, this regulation relates to all subdivisions throughout the city and not just to Stevens Creek. With regard to the site specific

structural BMPs, Krueger pointed out that there is no determination as to the amount of land that will have to be set aside to install this forebay or other items called for in this design. He believes this will double the size of the current amount of ground to be set aside for detention facilities. He believes the flood control aspects can be done, but the forebay aspects relate to water quality. His question is: what is the present water quality standard? Is there one today? He does not believe there is. After we change the design standard and put in the forebays and set aside additional ground, what will the water quality be? How much good will this do? He does not know that it is going to be measurable, and, if not, he questions why we should do it.

He wondered whether the $210 per area of drainage includes the cost of the land. He does not believe it does. It is Krueger's opinion that this is wildly understating the actual cost.

Krueger then referred to page ES9, which talks about revisions to the drainage standards to establish uniform criteria for development of a maintenance plan to be submitted with the preliminary plat. If we are going to have that standard, Krueger believes it should be at the final plat stage instead of the preliminary plat.

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Public Testimony Given After the Applicant Presentation:

5. Peter Katt appeared as an attorney that practices in this area who will need to advise clients for a number of years. He has been involved in this process since it started and has considered it to be continuing legal education. He believes it is important to pay attention and put things that we mean in the Comprehensive Plan. It cost over a million dollars to put this plan together and he looks forward to the day the city spends the same amount toward affordable housing and other efforts. He is concerned that the Comprehensive Plan continues to be cluttered with extensive long documents. It is a very complicated plan, yet it is supposed to be guidance to the community.

Katt suggested that the other big picture issue is that the recommendations with regard to this watershed are really focused primarily upon the urban component of the watershed. The damage portrayed by the pictures were not created by urban development but by agricultural development. There are no plans created that address the continuing detrimental effects that occur from the existing uses that are already in the watershed.

Katt does not believe the costs have been properly estimated. He submitted that the ongoing development in Eagle, Waverly, Hickman, Otoe County and Bennet is a direct response to the costs that are being built up in this community so that we can have this type of standard in place that no other city in the state of Nebraska has. It costs money.

With regard to the specifics, Katt suggested that the BMP component is really not in front of the Commission today, but it is suggested in the plan. Those costs will apply across all new development. It is important to recognize that as a part of this process it was recognized that this cost should be a shared cost between the public and private sector. All of the new standards being imposed are imposed only in new developing areas, and this is particularly important as it relates to stormwater because only new areas of town pay for these new standards. In the existing city, all of us get to pay for it. It is fundamentally unfair to pass along substantially higher stormwater standards and make people in the new areas pay for all the enhancement for stormwater features. If we want these standards, everyone should pay, not just people in new developments.

6. Robert Peterson, 1230 O Street, testified that he has been a 50-year observer and participant in the development process. He is currently CEO of the nonprofit Nebraska Housing Resource, which is currently engaged in a 34-acre development which includes a small detention pond which occupies the equivalent of four lots. He estimates that the detention pond will cost $20,000 for the outfall structure, or $1200 per lot. A forebay would take up two lots and will cost over $2,000/acre, or over $500 per lot. This has an impact on affordability.

7. Russell Miller, 341 S. 52nd Street, testified on his own behalf and on behalf of the **Lincoln Neighborhood Alliance** in support. He discussed how flood insurance premiums are a financial loss to Lincoln, which has been corrected by the use of detention ponds and the BMPs. The BMP concept can be integrated into detention ponds with minor revisions.

8. Marleen Rickertsen, 9259 Pioneer Court, served on the advisory committee. She grew up on Stevens Creek on the Stevens Creek Stock Farm with the sixth and seventh generations now living on that farm. She referred to Figure ES5, Future Wastewater Trunk Sewer, and suggested that where the trunk sewer gets between Stevens Creek and the tributary, it covers an unplowed native prairie. That trunk line would destroy the prairie. She would request that something be done to amend the plan so that trunk line goes somewhere else so that it does not destroy that prairie and go through the middle of the historic farm. She would also request that the future trails be shown on the edge of the farm as opposed to going through it. In addition, she pointed out that the historic farm is located in an opportunity area. This farm has been preserved by her family for over 150 years and they would like to keep it in private ownership and preservation. A public park or public access does not mean preservation and it would destroy the purpose of the farm. This is still an active farm. Changing the use diminishes the historical value and the significance of the farm.

9. Foster Collins, 2100 Calvert, testified that he has followed the development of the stormwater ordinance, floodplain regulations, Beal Slough, Southeast Upper Salt Creek and served on the Mayor's Floodplain Task Force. The Stevens Creek Watershed Master Plan offers an opportunity to protect parts of Lincoln from damage due to flooding. He would like to see the same floodplain regulations brought forward for the developed areas soon. The site specific BMP addresses the impacts from the smaller storm events. He showed photographs of some of the flooding results from urban development. He believes that the cost of the BMP will offset the measures needed to fix flooding damages.

10. Mike Eckert, 3316 Willow Wood Circle, was a member of the Advisory Committee. He also holds a Masters Degree in Community and Regional Planning from UNL and is familiar with the development process as he works for an engineering consulting firm. The issues are very complex for the lay person to understand and grasp. He submitted that the input from the committee members was limited. The plan was basically given to the committee, but the committee members were not allowed much opportunity to make suggestions. He suggested that the public

participation process was more of a public education process. The committee was presented with two scenarios: regional detention cells and the BMP in front of existing detention cells. The committee really questioned how they came up with some of the costs on the forebays and the long term maintenance. The committee asked for some revisions and that cost estimate to take place and it was never done. He requested that the long term maintenance costs be further investigated. He believes that the cost of an acre has increased and the estimates are not accurate. If that's a community value, do we want to pass that cost on to just the people in that basin? Not all of the people are going to live in Stevens Creek, but maybe the community as a whole needs to participate more in the cost of the BMP. There needs to be more discussion at this level.

Eckert suggested that another issue is the 10 million dollars in projected stream improvement projects. We have to watch where we spend our resources. About one-fourth of this basin is projected to be developed in the next 25 years. It was made clear to the committee that the agricultural runoff has caused the problem, thus Eckert is not sure we want to spend 10 million on one-fourth of the basin when we're not doing anything in three-fourths of the basin.

Marvin inquired as to how often the forebays would silt in and require that something be done. Eckert believes the projection was three times a year. The developer would be required to put up escrow for five years of maintenance, $2500. He believes it might cost $1000 to $1500 per time to clean out the forebay, or $3000 to $4000 per year. There is also a need to further analyze the methodology used on the land costs.

In terms of cleanup, Eckert stated that it would require unloading a bobcat, cleaning some silt in the flow liner, general trash removal and then putting it in a truck and hauling it off site.

11. Tim Knott, 4210 Waterbury Lane, testified on behalf of the **Wachiska Audubon Society Preservation Committee.** One of their members served on the Advisory Committee. His committee agrees with the site specific BMPs, and that they should be part of the cost of developing these areas.

12. Mark Palmer, professional civil engineer working in the land development business in Lincoln for 13 years, stated that the primary issue is the forebay as a BMP. This is going to be a permanent structure which removes developable land from a subdivision. Last year, the minimum flood corridor standards were brought forward, which referred to natural buffer and a sponge for water filtering. The forebay is in addition to those minimum flood corridors. He is lost as to whether the concern is a sediment concern or an actual water quality pollutant concern. An alternative which might be a win-win would be some kind of semi-permanent sediment basin--a couple of lots reserved on a site rather than designated for a forebay–which would be left as a sediment trap until a certain level of the subdivision is built out. At that point, those two lots would be released to be developed. Another alternative is the NPDES permit that developers must comply with when grading sites. Maybe there needs to be an additional standard on the building contractors to keep the mud out of the streets during construction.

In terms of the water quality issue, Palmer questions why this can't be a city-wide issue with ordinances put in place. If it is a water quality issue, an arterial road has about the same impervious area as a big box retail or parking lot. He questions how the city will take care of the water quality issues off of arterial roads.

He also has questions about implementation. What do you do in the case where you do not have a detention cell at the bottom of the subdivision? What occurred at Stone Ridge Estates at 27th and Yankee Hill Road is that the actual detention cells are the ponds utilized as a water feature with

apartments around them. He has been told that each storm sewer outlet that would outlet onto the channel would require some sort of stormwater quality enhancer, so there would be lots lost for these enhancements.

If the city is serious about water quality, Palmer suggested that there are measures to be taken to implement low impact development standards (LIDS). It is a change in the design standards for the overall city, eliminating storm sewer, going to more rural type roads and enhancing water quality.

Pearson inquired whether the proposed master plan prohibits the design and implementation of LIDS. Palmer does not believe that it is prohibited, but it would change the design standards and change block lengths and connectivity at less cost.

13. John Layman, a real estate consultant and appraiser for 37 years, submitted a report of a study done by Applied Soil Geography, LLC. Layman engaged this federal government soil scientist to review the Stevens Creek Watershed Master Plan. He believes he has a solution to make it plausible for Lincoln to continue to have affordable housing. The total area of the watershed is about 34,044 acres, partially in the city and bounded by I-80 and Hwy 2. It is a mixture of urban, rural and agricultural land use. The landscape is generally rolling to undulating and the soils are moderately to well-drained silt loams and silty clay loams. It will reduce the number of developable acres by 8,987 acres, or approximately 14% of the watershed. To become cost effective, it is recommended that there need to be additional cost effective studies done.

The report recommends that the city acquire all of these areas. The land prices have doubled and tripled depending on location. Quality standards can be effectively measured. If the city cannot make a benefit based on $800/acre versus what a developer could get, the cost increase in price is $5,000 per lot to meet these standards, in addition to the impact fees. The land on the edge of the city has increased in price.

Larson asked Mr. Layman to estimate the cost per residential lot if this plan is adopted. Layman explained that he is suggesting that we could save the taxpayers' money. The political arm of the community needs to educate the community that they have to pay their share. The developers can make a profit by leaving Lincoln for the next five years.

Bills-Strand inquired whether this report suggests that Lincoln has gone too far on channel depth and stream width. What does the study say? Layman observed that it will be very hard to do a subdivision under these new standards. If the city owns the land, then the city becomes the developer and sells easements back to the development community. He believes this

would be cost effective. It would reduce what would eventually be an inflated number of every home that would be built in Stevens Creek. There needs to be a cost-benefit study.

Response by the Applicant

With regard to the assumptions for the land cost, Fleck-Tooze explained that the only thing new here is relative to the structural BMP's. The assumption that was used was $25,000/acre, which was based upon the values that the team was hearing from a local appraiser at the time the development would be purchased, which would be several years before it was developed. The team did not receive any information that supports that the costs would be significantly higher. Those are the same land cost assumptions that were assumed for the alternative measures in terms of equivalency. The team was really assuming the worst case scenario in terms of the land requirements for the sediment basin being separate and distinct relating to flood control.

O'Neill advised that the sediment forebay is very small. For a typical development size of 75 acres, the pond currently required by the city would be about 2.5 acres--the sediment forebay would be about 1/10th of an acre. It can be a separate stand alone facility from the detention pond which would require additional land cost; however, it can also be designed to be inclusive within the original footprint of the detention pond, so the sediment forebay can also be used for flood storage and water quality purposes. He believes the cost can only go down based upon how the developer chooses to design the facility.

With regard to cost-sharing, Fleck-Tooze suggested that the team felt it was a good compromise and, as proposed, it would be a cost that would also be borne by the community at large.

With regard to the Stevens Creek Stock Farm, Fleck-Tooze clarified that the future wastewater trunk sewer alignment is not being adopted with this plan; it does not preclude an alternate alignment; the future trail is from the trails master plan; the opportunity areas do not imply public access, but imply that there may be opportunity for parks or for private land to be preserved for open space or historic resources.

O'Neill addressed the water quality standards. There is a permit required to implement structural BMP's to control runoff. This plan encompasses all federal regulations and, in addition, strongly recommends a process for involving the community.

As far as no other communities using the structural BMP's, O'Neill advised that the structural BMP's took hold on the east coast in the early 1980's, then on to the west coast. Now they are in the midwest. It's the right thing to do.

As to affordable housing, O'Neill stated that the worst case is $210 per acre of drainage. On a 75 acre development, if you assume 1/4 acre lots, that breaks down to $25 per lot of increased cost for each lot, a small investment to avoid very, very expensive stream erosion problems. Now is the time to act. This is a very proactive approach.

With regard to damage from agricultural development, O'Neill suggested that over the last 30-40 years, there have been a lot of agricultural practices, but agricultural management practices have evolved over the years, and today those management practices implement terracing and green grassways. As long as these current agricultural practices occur in the watershed, there will be no additional problems caused by that practice.

O'Neill also clarified that the structural BMPS is just one concept. The plan goes into quite a bit of detail on some other alternatives, including LIDS. This plan is a first step in an easy way to protect the water quality and flooding.

Vicki Luther reiterated that this project was extremely complex and the advisory committee members who attended the open house events, etc. were truly challenged to understand all of this science because the people who participated came from every possible walk of life. One of the assignments for the advisory committee was to serve as a liaison to other parts of the community – to help the scientists on this team to make sure that what they were presenting was understandable. The two most important ways that the public influenced this master plan was through the development of this cost share concept. This would never have come forward without the public input. The advisory committee did an extraordinary job of serving as a liaison to other interest groups.

Glenn Johnson offered that whether or not development ever takes place, there are problems out there now that will continue to move in the stream or they are endangering a bridge or road or a building or a home. The projects for these problems were identified and priority was placed on them. These projects are addressed basin-wide, and that is the 10 million dollar estimated cost. As projects and opportunities arise, these are public projects that are going to need to be addressed. To wait until it is urbanized and built around, it will be much more costly.

Johnson also addressed the maintenance plan for the stormwater detention BMP's, and suggested that these practices need to be in place in advance of final platting because almost all of the grading is accomplished with the preliminary plat. These practices need to be in place at the beginning of the process, not when it is final platted. It is very critical to have that kind of a maintenance tool available for the future owners and operators.

As far as "why Stevens Creek and not Salt Creek", Johnson explained that the Mayor's floodplain task force recommendations have not gone away. One of the very major recommendations relating to Salt Creek was to get more accurate information–then consider the changes you want to make on the floodplain ordinance in the urban area. The NRD is starting to completely update and remap the Salt Creek floodplain. Once that is done, we can evaluate the floodplain regulations for the urban area.

Carlson asked the consultant to speak to the long term maintenance cost estimates. O'Neill explained that sediment will come into the forebay as well as trash and debris. We're not talking about a large amount. Maintenance is already required for the larger facility. What we are asking is a scoop, shovel and bucket to scoop the sediment and clean the bottles and trash before they get into the pond. Sediment also binds up other pollutants. Carlson confirmed that O'Neill is satisfied with the cost estimate in terms of the cost of cleaning out the larger facility. O'Neill stated that the consultant team looked at national averages, but only the required maintenance just to handle the sediment forebay piece.

Carlson inquired whether a single development with multiple discharge points would be required to have a structural BMP at each discharge point. O'Neill suggested that there are various ways to be able to address the water quality component on a specific individual basis and spread out that structural BMP in various parts. You don't have to do it at the detention pond. Before the stormwater enters the natural system it would have to process through a structural BMP, so if there were multiple discharge points coming into the creek, it would be up to the developer whether to do the structural BMP at many discharge points. The lay of the land dictates where you will be required to do it. The quality would need to be satisfactory at the end of the parcel.

Carlson questioned the location of the trunk sewer line on ES5. Fleck-Tooze advised that to be the current preferred alignment, but this plan does not adopt the alignment and only shows it for information purposes. Wastewater is aware of the concerns that have been raised and will continue to work with Ms. Rickertsen as it moves forward. It would be at the point of design where we would look at the more detailed alignment. However, that is an issue that is separate from this watershed master plan. The alignment is not adopted with this master plan.

Taylor wondered whether some type of cost structure could be set up in terms of the type of development. Fleck-Tooze responded that the bulk of the runoff in terms of stormwater runoff will determine the size of the detention pond. That is in the regulations today. These details could be addressed as we bring forward design standards and ordinance revisions. Taylor believes there should be bonus points for doing a low impact development. Fleck-Tooze suggested that the standards that come forward will have that as an alternative.

O'Neill explained that the water quality measures recommended are based on the amount of impervious surface in the development.

Larson thought there would need to be some detention facilities on undeveloped land as well. Fleck-Tooze advised that the city standards would only kick in when new areas are subdivided.

ACTION BY PLANNING COMMISSION: March 2, 2005

Main Motion: Taylor moved approval, seconded by Carlson.

Motion to Amend #1:

Bills-Strand moved to amend to provide that there be a cost study analysis of the BMP cost estimates, and that other low cost approaches be investigated, seconded by Larson. The intent of the motion is that all low cost options be considered and given an opportunity to be chosen by the developer, if it meets the quality needs.

Bills-Strand explained that she wants to make sure we look at some of the other options such as the semi-permanent sediment basin that could be done that might not cost quite as much, and make sure that the plan spells out that other cost effective measures be considered.

Larson believes that would include the suggestions that have come out today.

Pearson thinks that the intent of the motion is already in the plan. Bills-Strand stressed that she wants it spelled out very clearly.

Fleck-Tooze approached and agreed with Pearson that it is already in the plan. Page 719 of the Master Plan describes alternative design approaches. O'Neill also suggested that the cost analysis has been done in Section 6 of the Plan.

Marvin offered some of his own calculations and suggesting that if a 75-acre tract needed a BMP, it would be an extra $2.00 a year to do the BMP maintenance. And even if the consultant's cost estimate was wrong and it was tripled, it would cost a homeowner $6.00/year. Fleck-Tooze added that the maintenance will actually lower the maintenance cost.

Pearson observed that if the developer has larger acreages, the detention pond has to be smaller and then the BMP can be smaller as well. It's not like the cost goes up per acre if you have larger acreages in the development.

Bills-Strand then clarified that the motion to amend is that all low cost options will be looked at and given an opportunity to be chosen by the developer, if it meets the (water) quality needs, seconded by Larson and carried 6-3: Sunderman, Krieser, Larson, Carroll, Carlson and Bills-Strand voting 'yes'; Taylor, Marvin and Pearson voting 'no'.

Motion to Amend #2

Carlson moved to amend that the approximate location of the sewer line on the map on ES5 be amended such that it is not shown to be running across the historic prairie, seconded by Bills-Strand.

Carlson understands this is not the official alignment but it is being adopted as part of the guidance of what will happen in the future. He believes it is important, as a recommending body, that the Planning Commission state a preference. Fleck-Tooze approached and suggested that the motion be to simply eliminate the sewer line location from the map. There is not a sewer alignment in front of the Commission today. If it is a cause of concern, it would be a better approach to eliminate it from the plan. She acknowledged and stressed that the planning team is well aware of the concern and is very sensitive to the issue. She would prefer that the future alignment not be shown. After further discussion, Carlson stated that he did not want to change his motion but suggested that if the motion carries, it will be up to the applicant to move it or delete it from the map.

Motion to Amend #2 carried 7-2: Sunderman, Krieser, Larson, Marvin, Carlson, Pearson and Bills-Strand voting 'yes'; Taylor and Carroll voting 'no'.

Discussion on main motion for approval, as amended:

Carlson stated that he is excited about the direction this is going. "An ounce of prevention" approach is always the best. It is always best to get out in front of development. In the long run it is a good investment to keep costs down.

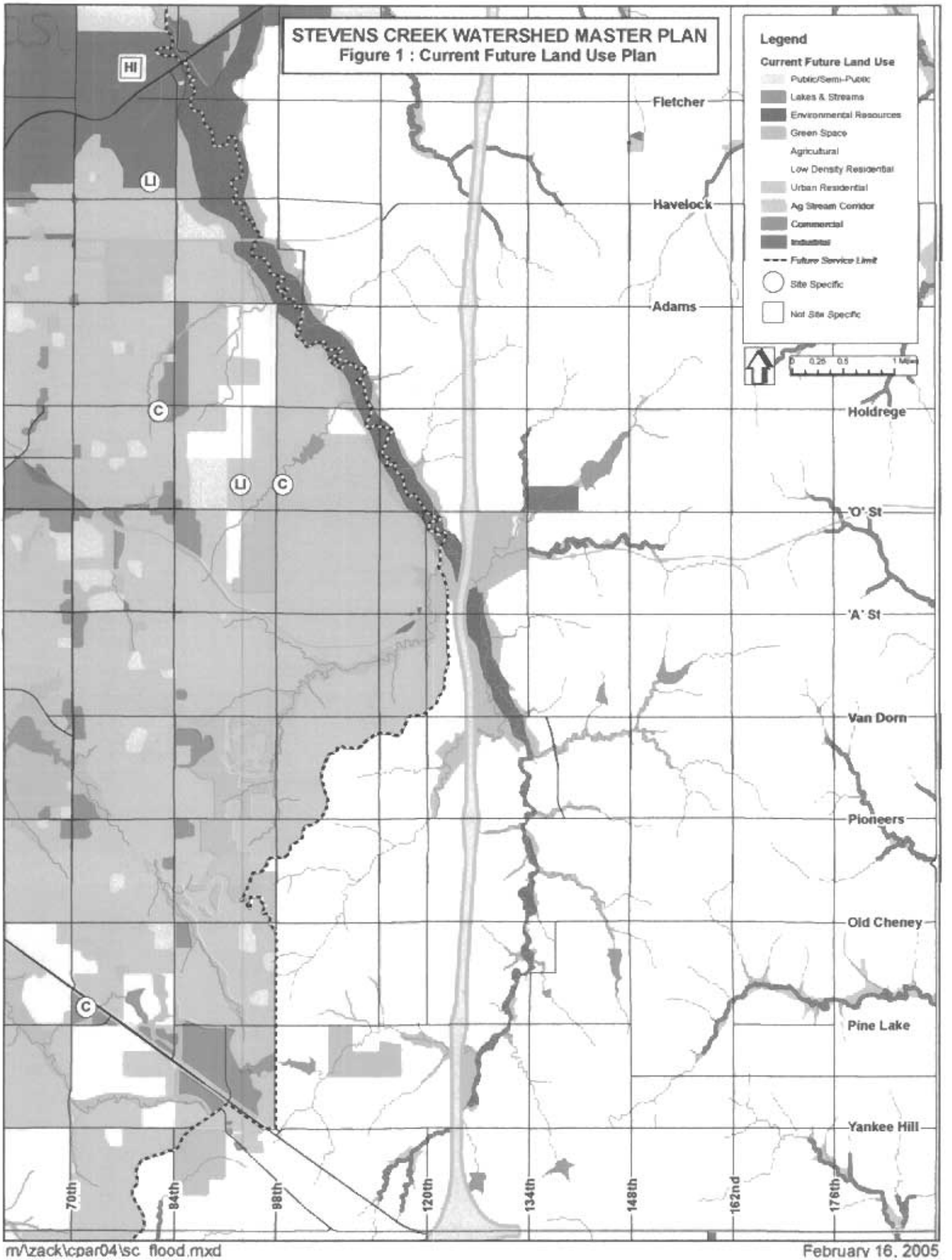
Larson observed that it is going to be interesting to see if we have increased the cost of development so much that the flight to Waverly and Hickman and all the others will continue or whether Stevens Creek will be developed.

Carroll expressed appreciation to the planning team. It is a very good plan. He lived in Stevens Creek for 20 years and personally experienced the flooding. It is great to get out in front of development for the first time in the city.

Taylor commended the team for the work they have done. it is a fantastic plan.

Bills-Strand expressed appreciation to the people that came to testify and that have spent a lot of time and hours on this plan. The Planning Commission goal is not to do all the detail work, but to determine that the Plan complies with the Comprehensive Plan. She will support it because we need to be out ahead of development, but sometimes she believes we go a little too utopian, too high quality and too overboard in terms of what we need to do. She likes to try to keep costs down. There has been a tremendous amount of development north of Cornhusker and south of Hwy 2. The sales tax and property taxes that those entities generate pays for the entire city. A development pays for everything and the impact fees pay for the arterials and the connectors. All of the new growth and new businesses help the entire city. That is why she likes the cost-sharing. The new developments do help pay for a tremendous amount of what this city enjoys.

Motion for approval, as amended, carried 9-0: Sunderman, Krieser, Taylor, Larson, Carroll, Marvin, Carlson, Pearson and Bills-Strand voting 'yes'. This is a recommendation to the City Council and the Lancaster County Board.



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February 16, 2005

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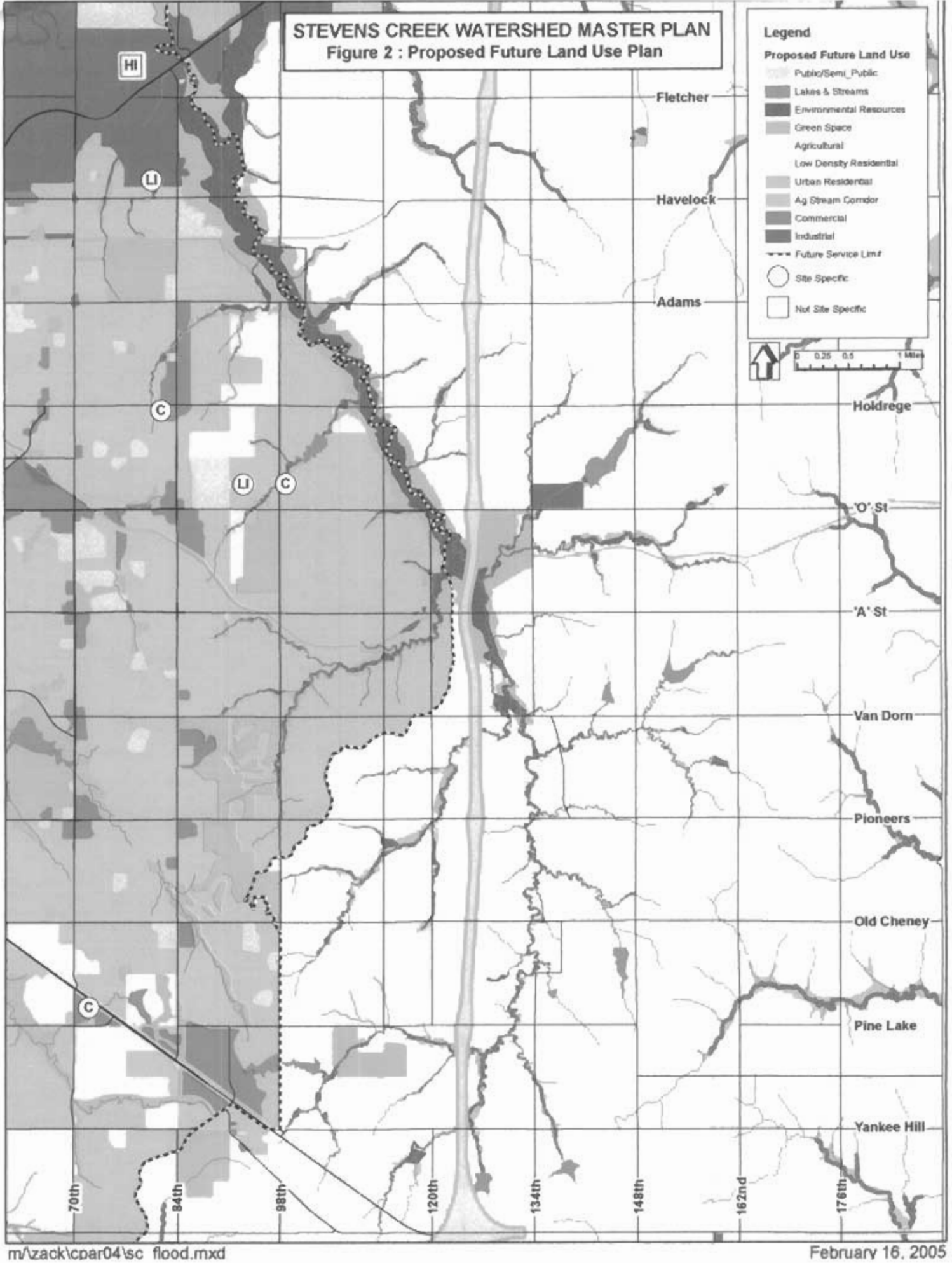

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February 16, 2005

CITY OF LINCOLN
NEBRASKA

MAYOR COLEEN J. SENG

www.ci.lincoln.ne.us

Public Works and Utilities Department

555 South 10th Street
Suite 203
Lincoln, Nebraska 68508
402-441-7548
fax: 402-441-8609

February 3, 2005

Marvin Krout, Planning Director
Lincoln-Lancaster Co. Planning Dept.
555 S. 10th Street, Ste 213
Lincoln, NE 68508

Dear Marvin:

This is a request by the Public Works and Utilities Department and the Lower Platte South Natural Resources District (NRD) for a Comprehensive Plan Amendment to adopt the Stevens Creek Watershed Master Plan to be scheduled for the March 2, 2005 Planning Commission agenda.

The Stevens Creek Watershed Master Plan is a joint project of the City of Lincoln and the Lower Platte South NRD in cooperation with the County, and it represents the third master planning effort to date. Master Plans for Beal Slough and Southeast Upper Salt Creek have previously been adopted as subarea plans. The Master Plan was initiated in order to develop long-term planning tools and improvement projects to address water quality, flood management, and stream stability to provide guidance for sustainable urban growth in the watershed. The Master Plan consists of four major elements: 1) Floodplain Management Tools, 2) Capital Improvement Projects, 3) Site-Specific Structural Best Management Practices, and 4) Opportunity Areas.

The enclosed Plan represents an extensive and inclusive public process to solicit input from a broad range of stakeholder groups, which included the involvement of a 25-member Citizen Advisory Committee and is detailed in the report. We are also scheduled to brief the Neighborhood Roundtable at their meeting next week on February 10th.

Should you have any questions or need further information, please contact Ben Higgins or Nicole Fleck-Tooze in the Public Works and Utilities Department.

Sincerely,

Ann Harrell, Interim Director
Public Works & Utilities Dept.

Glenn Johnson, General Manager
Lower Platte South NRD

cc: Don Thomas, Doug Pillard - Co. Engineering
Lynn Johnson, J.J. Yost, Terry Genrich - Parks Dept.
Nicole Fleck-Tooze, Ben Higgins - PW/U Dept.
Mike DeKalb - Planning Dept.
Pat O'Neill - CDM
Milan Wall, Vicki Luther - Heartland Center for Leadership Development

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LINCOLN
The Community of Opportunity

Lancaster County Engineering Department

DON R. THOMAS - COUNTY ENGINEER

DEPUTY - LARRY V. WORRELL
COUNTY SURVEYOR

FEB 18 2005

DATE: February 17, 2005

TO: Mike DeKalb
Planning Department

FROM: Larry V. Worrell
County Surveyor

SUBJECT: STEVENS CREEK WATERSHED
COMPREHENSIVE PLAN AMENDMENT

This office has reviewed the Executive Summary for subject study and have no objections.

This watershed master plan will be a useful tool as the Stevens Creek area is urbanized or stream improvements are planned.

LVW/DP/bml
Barbi/LVW/Stevens Creek Watershed Comp. Plan Mem.

023

FAX # (402) 441-8692 444 CHERRYCREEK ROAD, BLDG C LINCOLN, NEBRASKA 68528 (402) 441-7681

Executive Summary

Introduction

The City of Lincoln (City) and the Lower Platte South Natural Resources District (NRD) are in the process of developing a Comprehensive Watershed Management Plan for the City of Lincoln and its future growth areas. This comprehensive watershed plan is being developed basin by basin, through the completion of watershed master plans for individual basins. Watershed master plans are used as planning tools to be referenced in conjunction with proposed development and as a guide in the preparation of future capital improvement projects.

The City and NRD have previously adopted watershed master plans for the Beal Slough and Southeast Upper Salt Creek basins (Figure ES-1). The Stevens Creek Watershed Master Plan (Master Plan) is the third master planning effort to date and is summarized in this report, together with the study components that served as its foundation. The Master Plan for the Stevens Creek Watershed has been prepared because significant near-term growth within the basin is expected as identified in the Lincoln-Lancaster County Comprehensive Plan.

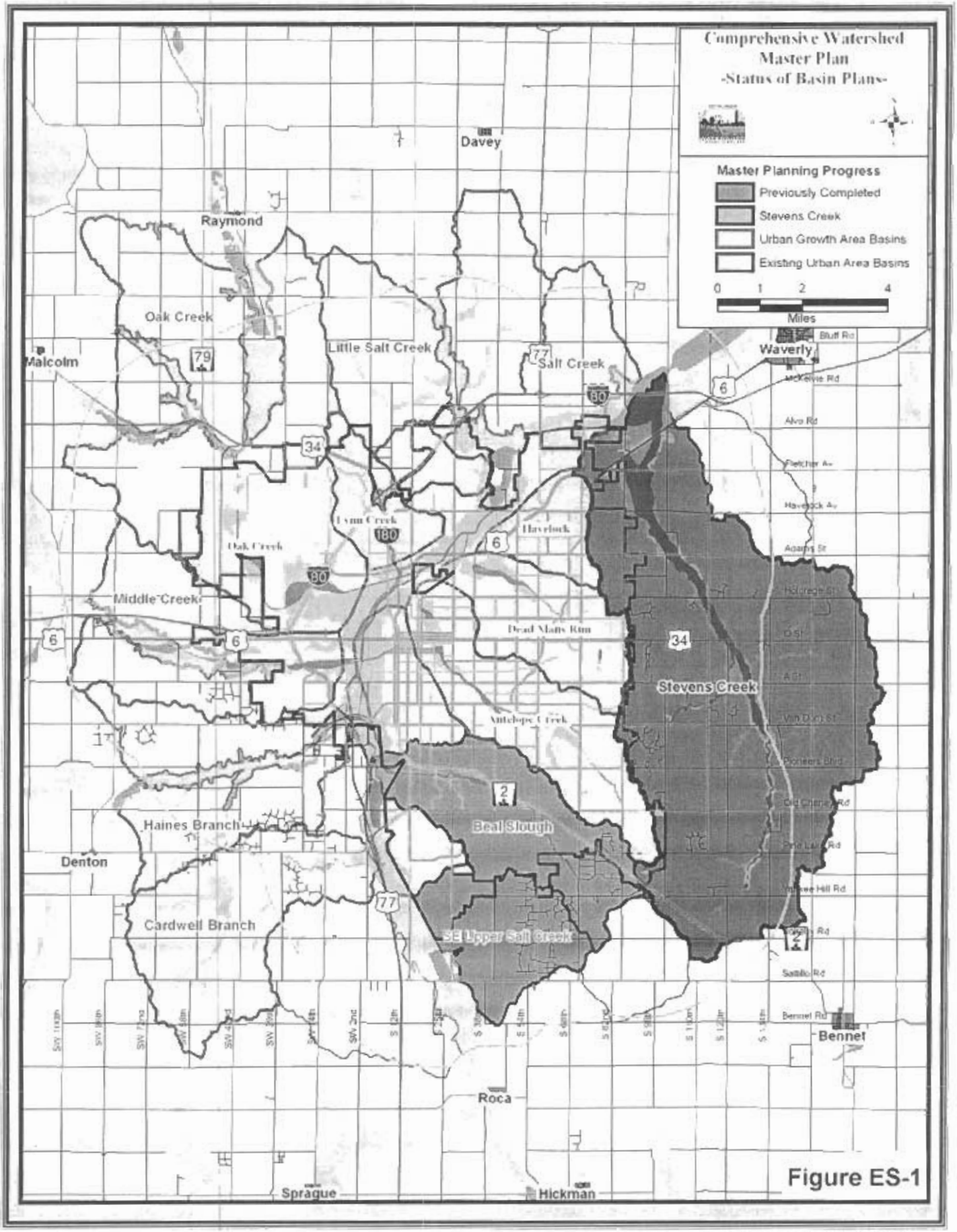
The Stevens Creek Watershed is located immediately east of the City's existing municipal limits (Figure ES-1). The watershed drains approximately 55 square miles from the headwaters near Highway 2 to its confluence with Salt Creek located just north of Highway 6. The watershed is approximately 15 miles in length with a maximum width of about 6 miles. The purpose of the Master Plan is to outline long-term planning tools and improvement projects to address water quality, flood management, and stream stability to provide guidance for sustainable urban growth in the watershed.

The project team was led by the City and NRD, in cooperation with Lancaster County (County). The City/NRD retained the consultant team of Camp Dresser & McKee Inc. (CDM), in association with Intuition & Logic (I&L), Heartland Center for Leadership Development (HC), Kirkham Michael Consulting Engineers (KM), and E&A Consulting Group, Inc. (E&A) to provide assistance with the master planning effort.

Public Participation Process

As part of the master planning process, a comprehensive public participation process was used to solicit input from a broad range of stakeholder groups. The stakeholder groups included landowners, developers, realtors and other business interests, environmental groups, and neighborhood representatives. The public participation process included the following:

- A questionnaire sent to approximately 4,000 people early in the study process to gather input from a wide range of stakeholders.
- The involvement and input of a 25-member Citizen Advisory Committee representing a broad cross section of interests in the watershed, including elected officials, which met with the project team on a monthly basis. Committee members included Ann Bleed, Andrew Campbell, Robert Christiansen, Dick Dam, Mike Eckert, Peggy Fletcher, Beth Goble,


Comprehensive Watershed Master Plan
-Status of Basin Plans-
Master Planning Progress
Previously Completed
Stevens Creek
Urban Growth Area Basins
Existing Urban Area Basins
0 1 2 4
Miles
Davey
Raymond
Oak Creek
Malcolm
Little Salt Creek
Salt Creek
Waverly
Middle Creek
Dead Mans Run
Stevens Creek
Antelope Creek
Beal Slough
Haines Branch
Denton
Cardwell Branch
SE Upper Salt Creek
Bennet
Roca
Sprague
Hickman
Figure ES-1

Rick Hodtwalker, Tony Koester, Marvin Lambie, Russell Miller, Kathy Newberg, Patte Newman, Brock Peters, Dean Petersen, Marleen Rickertsen, Jane Schroeder, Alan Slattery, Jason Smith, Steven Smith, Lyle Vannier, Jack Wagener, John Watson, Bob Wolf, and Bob Workman.

- A series of three open houses in September 2003, September 2004, and January 2005 that attracted over 500 people, and representation at four additional public information events.
- A series of six meetings with landowners regarding alternative management approaches.
- A series of three interest group meetings with a range of stakeholders to discuss alternative management approaches, attended by approximately 100 individuals.
- A series of eight newsletters mailed to over 700 individuals and organizations. In addition, a project website was used to post alternatives under consideration, upcoming events, and materials distributed to the Advisory Committee.
- Watershed bus tours for Advisory Committee members and elected officials.

The public input and feedback received during this process was used by the project team to formulate and refine its master plan recommendations. Section 1 of the Master Plan provides further details regarding the public participation process.

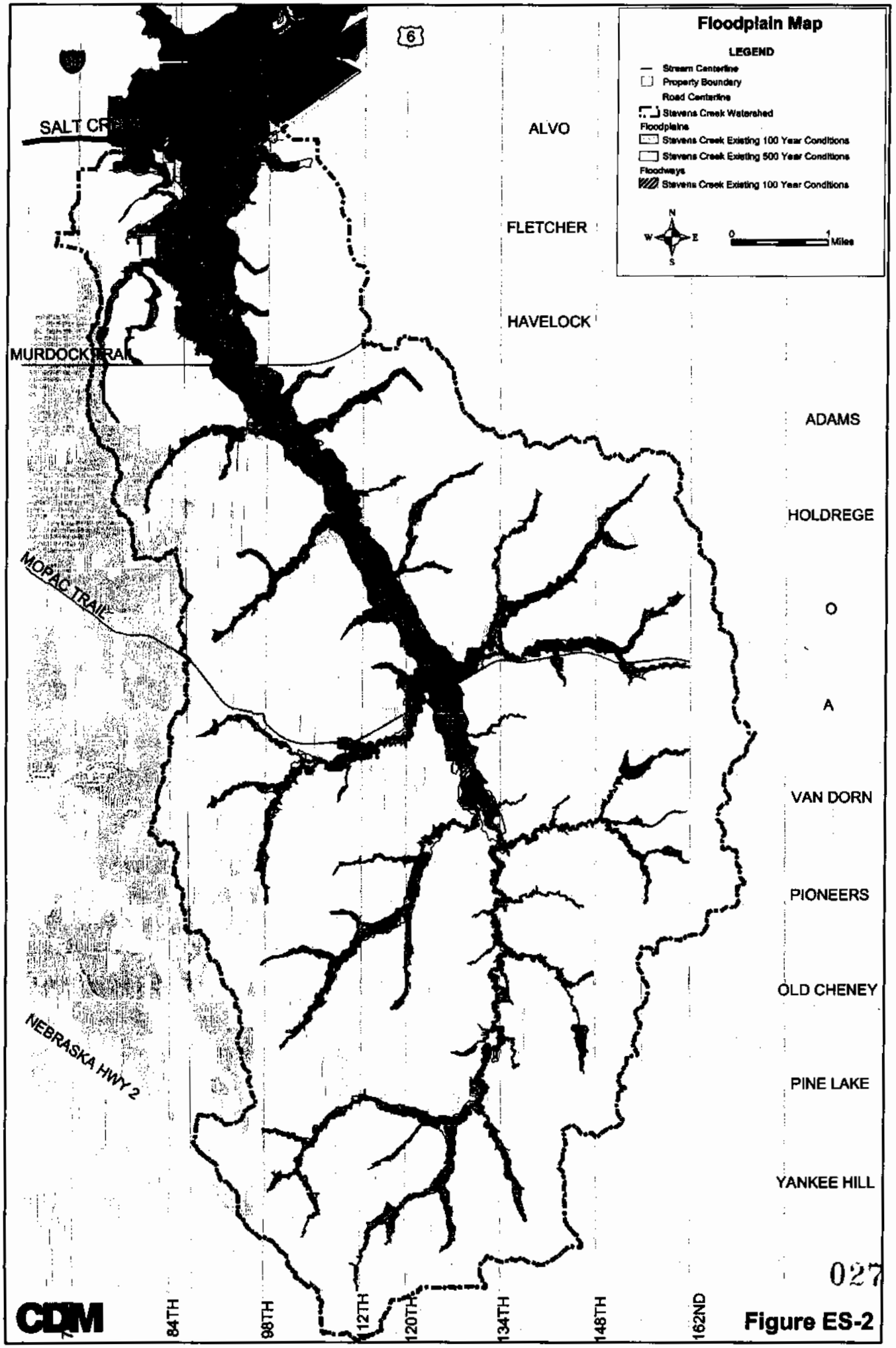
Master Plan Elements

The Master Plan consists of four major elements: 1) Floodplain Management Tools, 2) Capital Improvement Projects, 3) Site-Specific Structural Best Management Practices (BMPs), and 4) Opportunity Areas. A brief summary of each major element follows:

Floodplain Management Tools

One of the major elements of the Master Plan is updated 100-year floodplain and floodway boundary maps. This information will provide a planning tool to protect future homes and businesses from flood hazards and provide guidance for sustainable urban growth in the watershed. The Master Plan reflects the floodprone areas shown on Figure ES-2 as adopted by the City Council in December of 2004 for local regulatory purposes. The Master Plan recognizes that these floodprone areas will be reflected on the Federal Emergency Management Agency (FEMA) floodplain maps at some time in the future when FEMA finalizes the Flood Insurance Rate Map Physical Map Revision.

The Master Plan also includes a strategy for adopting design standards needed to address stormwater volume and timing issues of individual detention basins within the larger watershed to avoid adverse downstream flooding impacts. As described in Section 6, this will involve using the computer models developed as part of the master planning process to design stormwater facilities for private development. In addition, the Master Plan assumes the goals and objectives of the Comprehensive Plan regarding floodplain management and the Flood Standards for New Growth Areas will be implemented. These



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CDM

Figure ES-2

include designating areas for future urban development generally outside of the floodplain and applying No Net Rise, Compensatory Storage, and preservation of Minimum Flood Corridors where development encroaches into the floodplain.

Capital Improvement Projects

The process of formulating capital improvement projects required the identification of primary and secondary problem areas in relation to the public interest. Primary problems are those that pose a public safety concern with respect to building flooding, stream instability, or severe maintenance conditions. In addition, primary problems include systemic problems that create a clear influence elsewhere in the watershed and will be significantly more costly to address the longer they are delayed into the future.

Secondary problems include sites where stream degradation or instability exist but are not likely to propagate to other areas of the watershed. Secondary problems also include infrequent flooding of habitable buildings. Secondary problems are not considered as serious primary problems and should be addressed in conjunction with other infrastructure projects occurring in the watershed. For example, many secondary problems can be addressed at the same time roadways are improved and water and wastewater pipelines are installed if they are located in the same general vicinity. In addition, secondary problems can be combined with routine maintenance activities.

The Master Plan includes 11 capital improvement projects to address the 26 primary problem areas identified in the watershed. In this watershed, only stream instability problems met the criteria for primary classification. The primary problem areas were grouped and prioritized to form the basis for 11 capital improvement projects that are shown on Figure ES-3. The photographs shown below illustrate the typical type of improvements recommended for the Stevens Creek Watershed. The total capital cost for all 11 capital improvement projects is estimated to be approximately $10.3 million as summarized in Table ES-1. Section 9 of the Master Plan provides further detail regarding the classification process and conceptual improvements for the 26 primary problem areas.

Typical stream improvement project recommended for Stevens Creek.

6 months after construction

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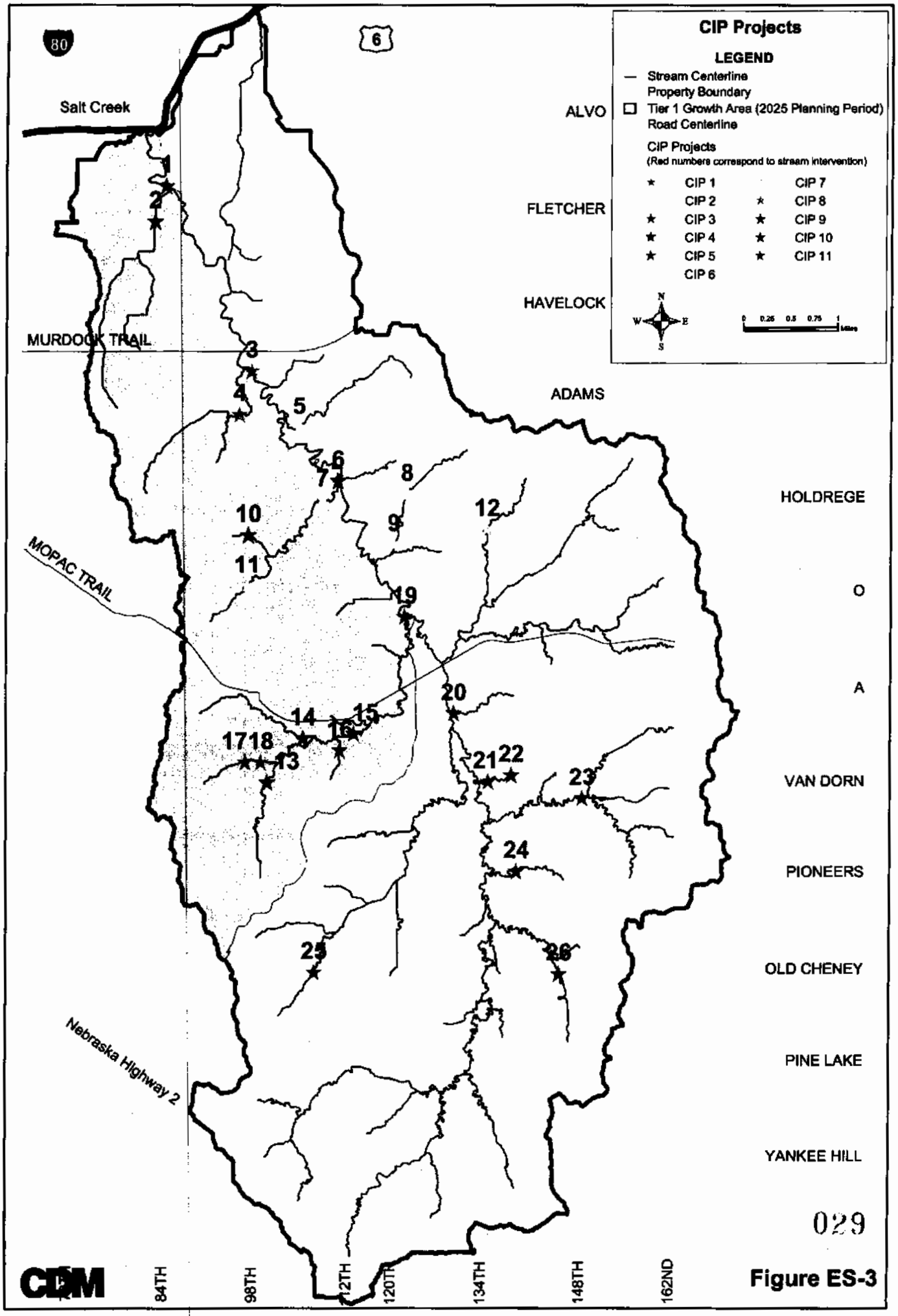

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Figure ES-3

Table ES-1
Capital Improvement Project List

Capital Improvement Project	Stream Intervention Number	Construction Sequence	Project Cost
1	3	1	$1,256,000
	4	1	
2	5	1	$1,336,000
	7	1	
	9	1	
	8	1	
3	19	1	$1,201,000
	15	1	
	16	1	
	20	1	
4	14	2	$776,000
	13	2	
5	22	2	$725,000
	26	2	
6	11	3	$863,000
7	12	3	$1,118,000
8	17	3	$1,006,000
	18	4	
9	1	3	$657,000
	2	4	
10	6	4	$748,000
	10	4	
11	21	4	$594,000
	23	4	
	24	4	
	25	4	
		Total	$10,280,000

The City, County, and NRD should use this Master Plan as a reference and guide for the implementation of improvement projects in the Stevens Creek Watershed through the City and County Capital Improvement Programs and NRD's Long Range Implementation Plan. The agencies should use cooperative efforts to address project timing, prioritization between basins, and the sharing of responsibility.

Site-Specific Structural Best Management Practices

The Master Plan includes using structural BMPs to offset the impacts from urban development on stream stability and water quality. The urbanization process significantly alters the hydrologic characteristics of a watershed, increasing flow rate, volume, and velocity of stormwater runoff, which causes long-term erosion problems. In addition, the impervious surface area collects pollutants such as oil and grease that leak from automobiles, which are eventually washed away by the stormwater runoff into natural streams and lakes. Structural BMPs are constructed facilities designed to remove pollutants and slow down the runoff before the stormwater enters the receiving stream. Structural BMPs are designed to address the smaller, more frequent rainstorms that carry the majority of pollutants and are believed to cause the greatest amount of erosion and sediment deposition.

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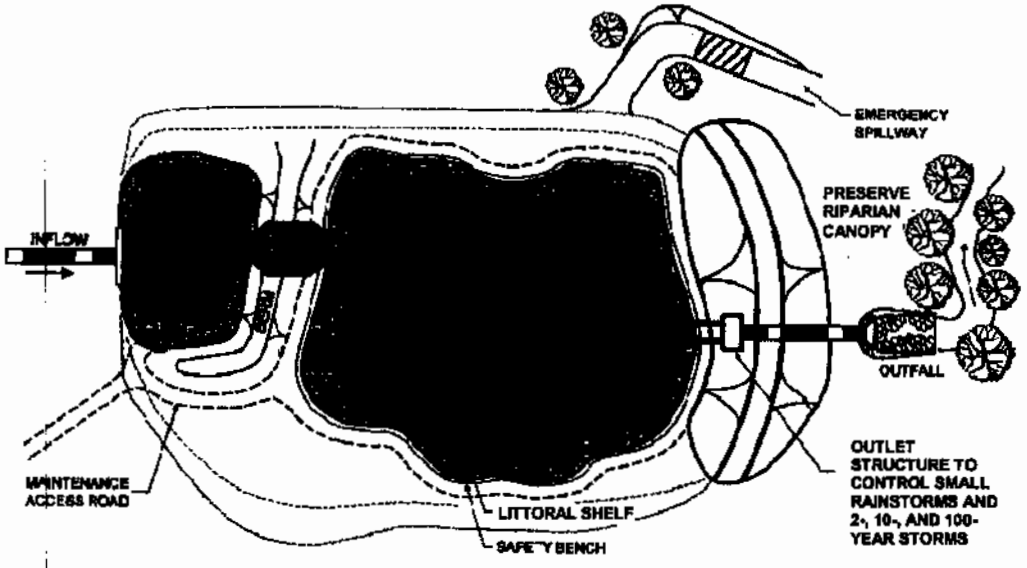
Two alternative methods were generated to install BMPs in the watershed based on a range of approaches discussed with the Citizen Advisory Committee. The methods included 1) Regional Structural BMPs, and 2) Site-Specific Structural BMPs. Advantages and disadvantages for each method were evaluated, which included an analysis of cost and effectiveness. The evaluation is described in Section 6 of the Master Plan and resulted in selecting site-specific structural BMPs as the recommended alternative. This method provides a cost-effective approach to maintain the integrity of the natural streams, preserve water quality, and can be efficiently integrated in the City's current development standards. The Master Plan includes guidance for revisions to the City's design standards for site-specific BMPs, which would be applied consistently to all new developments. Section 7 of the Master Plan provides further details on how to integrate structural BMPs into new development sites.

Currently, City standards for new developments require detention basins designed to control the 2-, 10-, and 100-year storm events. Structural BMPs can be efficiently integrated with detention basins as shown on Figure ES-4. This includes adding a sediment forebay and designing the outlet structure to control the smaller, more frequent rainstorms. This integrated facility will provide both water quantity (flooding) and quality (pollutant removal and stream stability) benefits. Structural BMPs can also be integrated into the site using alternative approaches independent from the stormwater detention basin.



Structural BMP components are highlighted in yellow.

Figure ES-4
Integrated Detention Pond and Structural BMP

The estimated cost to integrate a structural BMP into the City's current detention basin design requirements is $210 per acre of drainage area. The additional cost for maintenance is estimated to be $500 per year per facility.

One of the key concerns expressed during the public participation process was the question of who should bear the cost for offsetting the impacts to water quality and stream stability caused by future urbanization. In response to this input, the cost-share concept

031

embodied in this Master Plan assumes that there is both private and public responsibility relative to how structural BMPs function together as a system to address water quality and stream stability throughout the watershed. The following concepts are embodied as part of this Master Plan element that outline public/private roles and responsibilities:

- A public-private cost share concept where the City and NRD share in the cost of constructing the BMP portion of the facility, jointly providing funding for $100 of the $210 cost estimated per acre of drainage area. City/NRD funding is anticipated to be provided on a first-come, first-serve basis and be contingent upon City/NRD approval of the proposed cost share program. In addition, the cost share program would be subject to yearly budget approvals, voter approval of general obligation bonds, and NRD board approval.

- Revisions to the subdivision standards to require a $2,500 escrow for the first 5 years of maintenance ($500/year).

- Revisions to the drainage standards to establish uniform criteria for the development of a maintenance plan to be submitted with the preliminary plat and referenced in the subdivision agreement. A good maintenance plan will not only provide a guide for future property owners but will help ensure that maintenance responsibilities are clear when ownership is transferred from the developer.

- The development of a proactive education program by the City/NRD.

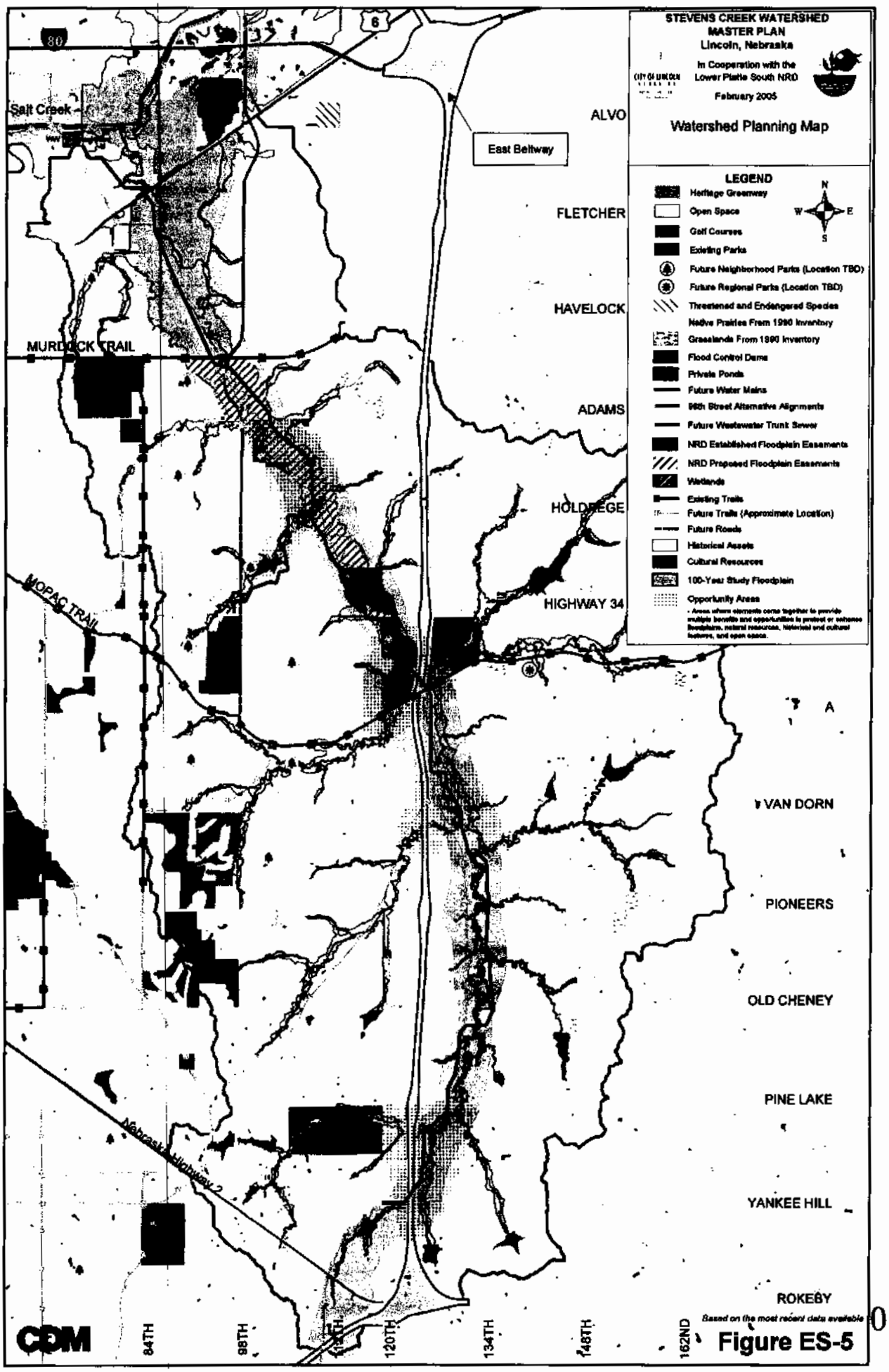
- The improvement/refinement of the City/NRD partnership to share in the responsibility of inspections on a regular rotation basis.

Opportunity Areas

Figure ES-5 is a Watershed Planning Map that overlays a wide variety of natural and built elements to support an integrated approach to watershed planning in Stevens Creek. Opportunity Areas are very general planning locations within the watershed that highlight where natural elements and/or existing or future infrastructure come together. These are areas with the potential for multiple benefits and opportunities to protect or enhance features like floodplains, natural resources, historical and cultural features, and open space.

Four Opportunity Areas are highlighted on the map along the Salt Valley Heritage Greenway, which follows the main channel of Stevens Creek. These highlighted areas generally recognize where natural features like the floodplain and drainage corridors overlap or are in the vicinity of other elements such as the East Beltway corridor, existing or future trails, NRD conservation easements, or historical and cultural resources.

As future planning continues for Stevens Creek, these areas should be referenced as a guide by City and County departments and the NRD, particularly with regard to opportunities to integrate parks, open space, and stormwater or floodplain benefits.


STEVENS CREEK WATERSHED
MASTER PLAN
Lincoln, Nebraska
In Cooperation with the
Lower Platte South NRD
February 2005
Watershed Planning Map
LEGEND
Heritage Greenway
Open Space
Golf Courses
Existing Parks
Future Neighborhood Parks (Location TBD)
Future Regional Parks (Location TBD)
Threatened and Endangered Species
Native Prairies From 1990 Inventory
Grasslands From 1990 Inventory
Flood Control Dams
Private Ponds
Future Water Mains
98th Street Alternative Alignments
Future Wastewater Trunk Sewer
NRD Established Floodplain Easements
NRD Proposed Floodplain Easements
Wetlands
Existing Trails
Future Trails (Approximate Location)
Future Roads
Historical Assets
Cultural Resources
100-Year Study Floodplain
Opportunity Areas
- Areas where elements come together to provide multiple benefits and opportunities to protect or enhance floodplains, natural resources, historical and cultural features, and open space.
N
W
E
S
Salt Creek
East Beltway
ALVO
FLETCHER
HAVELOCK
ADAMS
HOLDREGE
HIGHWAY 34
MURDOCK TRAIL
MOPAC TRAIL
Nebraska Highway 2
VAN DORN
PIONEERS
OLD CHENEY
PINE LAKE
YANKEE HILL
ROKEBY
80
6
A
84TH
98TH
120TH
134TH
148TH
162ND
CDM
Based on the most recent data available
Figure ES-5

Summary

The Stevens Creek Watershed Master Plan provides the City and NRD with the necessary planning tools and capital improvement projects to address flood management, water quality, and stream stability for achieving sustainable urban growth in the watershed. By using the detailed study information and applying the Master Plan elements described above, multiple goals will be achieved including:

- Protection of future homes and businesses from flood hazards
- Reduction of future impacts to water quality and stream stability due to urbanization
- Preservation of aquatic and riparian habitat
- Long-term stream stability that protects public infrastructure
- Development guidelines that address stormwater quantity and quality
- Opportunities for multiple benefits through an integrated approach to watershed planning

TO: The Planning Commission
FROM: Marilyn McNabb, 1701 W. Rose St., Lincoln, NE 68522
RE: Adopting the Stevens Creek Watershed Master Plan
DATE: March 1, 2005

These comments address the Comprehensive Plan Amendment No. 05001 which would include the Stevens Creek Watershed Master Plan as a subarea plan of the City County Comprehensive Plan. I hope you will support the amendment.

My perspective is that of a non-expert citizen who learned about floodplain management issues when I served on the Mayor's Floodplain Task Force. I am struck with the high level of congruence between the recommendations of our Task Force and the Stevens Creek Watershed Master Plan.

The Floodplain Task Force gave great importance to our recommendation to continue to develop and improve floodplain mapping. I am happy to see the first element of the proposed Master Plan supports the use of the most current maps.

The Master Plan would adopt the standards recommended by the Floodplain Task Force for New Growth Areas of no net rise and compensatory storage, as well as preservation of minimum flood corridors where there is encroachment on the floodplain. The distinction in the analysis of capital improvement projects between primary and secondary problem areas appears to parallel the Task Force's assignment of higher priority to those problems which will affect not only the site itself but also other areas in the watershed, as in the no adverse impact framework.

The Task Force recognized the value of the Best Management Practices already identified in the City of Lincoln Drainage Criteria Manual and noted the importance of continuing to update the Manual as BMPs improve. In selecting site-specific structural BMPs, the Master Plan applies these principles.

Although there was considerable support on the Task Force for the concept of a Floodplain Development Fee, we were unable to devise an equitable fee system. The Master Plan recognizes that both the public at large and the developer benefit from good water quality and stream stability. Therefore, its proposal to share costs seems completely reasonable.

One of the most important among the multiple goals of the Master Plan is "preservation of aquatic and riparian habitat," in other words, to see that development is less destructive to the natural world, which, for many reasons, is also a benefit to the human world.

I urge you to approve the amendment and pass it forward promptly to the City Council.

1 March 2005

I urge you to adopt the Stevens Creek Watershed Master Plan .

Sometimes we get so tangled up in our day to day expenses that we forget that our short term actions can also result in long term expenses.

First a review of history as to why approving this Master Plan is necessary and why it is in our best financial interest to avoid repeating the mistakes of the past.

Enclosure 1 is a snapshot of a very small area of Lincoln that is in Deadmans Run floodplain. This 14 block area was developed in the late 60's and early 70's when it was out of the floodplain. The significance is that I have been told by one home owner that her flood insurance premium is over $900 per year. Using 900 dollars times 125 floodplain homes yields $112,500 in flood insurance premiums. However, on a national average, only 10% of the homes actually have flood insurance which means that this small area is exporting $11,250 annually out of Lincoln. This is money that is not spent in Lincoln and the city does not collect sales tax etc.

Enclosure 2 is a photo of an apartment house investment that found itself in the floodplain about 10 years after it was built. This investment property is now required to have flood insurance (if it financed by an FDIC bank) and any first floor prospective tenant should be advised about acquiring personal property flood insurance.

To prevent these financial losses from continuing, Lincoln wisely made detention or retention ponds for new developments a requirement. The developer is required to maintain them and the developer usually passes this responsibility on to the home owners association. Maintaining these ponds can be very expensive if not done correctly.

The most cost effective method over the life of the property is to require the use of Site Specific Structural Best Management Practices (BMPs) as explained in the Stevens Creek Watershed Master Plan. The reason for this is that the BMPs recommended in the Stevens Creek Watershed Master Plan will make maintenance of retention ponds easier and less expensive and provide better stream stability protection. It's a win-win situation because besides better maintenance and stream preservation, it will improve stream water quality. They also can be integrated into the detention ponds with just minor revisions.

Thank you,

Russell Miller

ENCLOSURE 1

AREA: N. 48 TO DAVID DR. (approx. N. 54) HOLDREGE TO FRANCIS (3 blocks north of Holdrege)
APPROXIMATELY 14 SQUARE BLOCKS

TOTAL # OF PROPERTIES	146	
# OF COMMERCIAL buildings & apts.	11	
# OF RESIDENTIAL	135	one house owned by Lincoln Housing Authority
# IN FLOODPLAIN	133	
# OF COMMERCIAL & apts.	8	
# OF RESIDENTIAL	125	one house owned by Lincoln Housing Authority
# OF OWNER OCCUPIED HOUSES	113	(90%)
TOTAL VALUE IN FLOODPLAIN	$13,187,302	
value of commercial/apts	$1,725,872	
value of houses	$11,461,430	

AGE OF HOUSING

OLDEST built	1918
NEWEST built	1978
MEDIAN yr. built	1971

DISTRIBUTION BY AGE		
	1918 to 1950	7
	1951-1960	10
	1961-1970	45
	1971-1980	63

VALUE OF HOUSING by county assessor

LOWEST	$57,200
HIGHEST	$160,400
MEDIAN	$91,300

DISTRIBUTION BY VALUE does not include LNA house		
	$50,000 TO 70,000	1
	$71,000 TO 80,000	6
	$81,000 TO 90,000	42
	$91,000 TO 100,000	59
	$101,000 TO 161,000	16
	total	124

flood insurance premium for 125 houses	**$112,500**
premium for 10% of the homes	**$11,250**

ENCLOSURE 2
2600 N. 37 about 3 blocks north of Dead Man's Run Creek
built 1975
assessed value 2004 $159,000
in Dead Man's Run watershed

The lower blue line on the sign is the predicted flood water height using FEMA's data. The upper red line is the flood height allowed by current Lincoln ordinance; the increase is caused by building or filling in the floodplain.

SUBMITTED AT PUBLIC HEARING BEFORE PLANNING COMMISSION: 03/02/05

COMP PLAN AMENDMENT NO. 05001

Danny Walker
President
South Salt Creek Community Organization
427 E Street
Lincoln, NE 68508-3049

(402) 477-7064

danny_1953@msn.com

City Of Lincoln
Planning Commission Members
Lincoln, Nebr.
March 2, 2005

RE: Stevens Creek Floodplain

Good Afternoon:

I am appearing before you today as President of the South Salt Creek Community Organization and also as a nearly lifelong resident **(50 yrs.)** of the Salt Creek floodplain

During the past thirty **(30)** plus years very little if anything has been done to improve floodplain protection for those of us residing within the floodplain boundaries of Salt Creek and it's tributaries

As a matter of fact, just the opposite has occurred over the years due to the fact that various departments of the City of Lincoln, Lower Platte South NRD and the Army Corps of Engineers has in fact rubber stamped building in the floodplains of Lincoln. Keep in mind, until very recently the City of Lincoln in fact had no idea what so ever of how much fill was being placed in the floodplains of Lincoln. Even more amusing was and is the fact that no one on City of Lincoln staff was monitoring the contents of the fill being placed in the floodplains of Lincoln. Be advised, there are City of Lincoln floodplain regulations that are very specific regarding floodplain fill contents. I was told that we **(City Staff)** are just **TO BUSY** to check fill content. It seems that the Lower Platte South NRD and the City of Lincoln is more interested in bike trails than floodplain protection. Think of the **TIME** and **MONEY** spent so far to build a bike trail thru Beatrice, which will supposedly continue on to the Kansas state line.

WHY all of a sudden this special interest in the **Stevens Creek watershed** that includes countless hours of meetings and basin study costs exceeding $1 million dollars. **WHO** set the priorities for this area over much older existing floodplain areas within the boundaries of Lincoln? **COULD** it be politics, greed, legal council, payola or what? **WHO** actually benefits in the long run? Could it actually be the landowner, politician, and or the developer **(OR ALL THREE)?**

What happened to the recommendations put forth by the City of Lincoln Floodplain Committee which incidentally overwhelmingly **recommended new floodplain**

regulations for older existing areas. Keep in mind, that recommendation was somewhat amazing when one considers the fact that there was very little input to the aforementioned Floodplain Committee from actual residents residing in the floodplains of Lincoln However, there were several special interest individuals on the Committee such as business owners and realtors. Keep in mind, the committee was appointed by the **MAYOR.**

Now it seems that we have what one might call **STALL TACTICS (over a year)** by the City of Lincoln regarding new floodplain regulations for older existing floodplain areas within Lincoln where there is actually a very high risk of loss of life should a major flood OR flash flood occur. **BE REMINDED,** floodplain boundaries **HAVE CHANGED AND WIDENED** in a majority of older residential and business properties located in the **VAST** floodplain areas of Lincoln.

Why the delay? Could it be politics, greed, legal council, payola or what?

It **SEEMS** that the City of Lincoln, Lower Platte South NRD with assistance from the Army Corps of Engineers has made a total mess out of the Floodplains of Lincoln. If **ANYONE** cares to **debate** this statement we will use as reference points **Salt Creek, Lynn Creek, Beal Slough, Dead Mans Run and Holmes Park Lake and Dam**

It would seem that an area such as the floodplains of Salt Creek and it's tributaries where approximately **3000** residents reside and which incidentally does not include over **200** plus businesses would have priority over the Stevens Creek Watershed. However, potential loss of life due to flooding evidentially does not carry much weight with the City of Lincoln and the Lower Platte South NRD **Or**, could it be that once again politics, greed, legal council, and or payola seems to carry more weight than the well being and safety of many low income families **(some large)** and **senior citizens** with meager financial means who actually have little choice where to live but in the floodplains of Salt Creek and its tributaries...

Thank you

Danny E. Walker

Danny Walker

Cc file
FEMA
EPA

Applied Soil Geography, LLC
880 St John's Ct, Crete, NE 68333
402-310-5605 email: asg@neb.rr.com

June 30, 2004

Layman & Associates
749 Wells Fargo Center
1248 O Street
Lincoln, NE 68508

Dear Mr. Layman:

Please find enclosed the report entitled Stevens Creek Watershed and the Proposed Flood Standards for New Growth Areas. I hope you find this report of value as it is a start toward evaluating the economic and development impacts the proposed Minimum Flood Corridor rule will have on the watershed.

If you have any further needs or questions, please feel free to contact me. Thank you for your interest and support.

Sincerely,

Robert D. Nielsen
Certified Professional Soil Scientist

02515

Applied Soil Geography provides quality, scalable soil data in a form and format that meets the customer needs and specifications.

Stevens Creek Watershed and the Proposed Flood Standards for New Growth Areas

Prepared for Layman & Associates, Lincoln Nebraska

Prepared by Robert D Nielsen

Applied Soil Geography, LLC
880 St John's Ct, Crete, NE 68333
402-310-5605 email: asg@neb.rr.com

Stevens Creek Watershed
Preliminary Report on the Effects of the Proposed Flood Standards for New Growth Areas.

1. Executive Summary: This report was prepared for Layman and Associates, Lincoln Nebraska and presents a synopsis of the preliminary findings of an investigation to determine the extent to which the Proposed Flood Standards for New Growth Areas will impact Stevens Creek watershed.

   1.1. The total area of the watershed is about 34,044 acres. The watershed is partially in the city of Lincoln on the west and is bounded to the north by interstate highway 80 and to the south by Nebraska highway 2. It is a mix of urban, urban rural, and agricultural landuse.

   1.2. The landscape is gently rolling to undulating and the soils are moderately to well-drained silt loams and silty clay loams. The majority of the watershed landuse is crop production but residential acreages and residential development are common.

   1.3. The effects of implementing the Flood Standards for New Growth Areas on the watershed will impact future development within the watershed by reducing the number of developable acres. Given the FEMA Flood Zone, Wetlands, and the proposed stream corridors, the impact on to the watershed's developable acres is to reduce those acres by 8,987 acres or about 14%. The following is a breakdown of the hydrologic limitation currently in place on the watershed and those proposed through the new standard.

      1.3.1. Currently in place:

         1.3.1.1. FEMA Flood Zone Acres – about 3,920 acres

         1.3.1.2. Wetland that may require mitigation – about 390 acres.

      1.3.2. Area affected by the "Proposed Flood Standards for New Growth Areas" in Steven Creek is about 5,790 acres of which 1,113 are in the FEMA Flood Zone.

         1.3.2.1. Breakdown of Flood Standards for New Growth Areas effected area:

            1.3.2.1.1. Total area – 5,790 acres

            1.3.2.1.2. In FEMA Flood Zone – 1,113 acres

            1.3.2.1.3. Outside of FEMA Flood Zone 4,677

   1.4. Data Constraints: Although every effort has been made to ensure the accuracy of information; errors and conditions originating from the original source data may be reflected in the supporting data, analysis, and conclusions of this report.

Proposed Flood Standards for New Growth Areas Effects on the Stevens Creek

This report was prepared for Layman and Associates, Lincoln, Nebraska. It presents a synopsis of the preliminary findings of an investigation to determine the approximate areal extent of the Proposed Flood Standards for New Growth Areas - Minimum Flood Corridor within the Stevens Creek watershed and to suggest certain effects that may result from the implementation of this rule. The impact on any specific area in Stevens Creek is not within the scope of this report and all analysis and discussion that follows are limited to the watershed as a whole.

1.1. Description of Stevens Creek: The total area of the watershed is about 34,044 acres. The watershed, to the west, is partially in the city of Lincoln and is bounded to the north by Interstate Highway 80 and to the south by Nebraska Highway 2. It is a mix of urban, urban rural and agricultural landuse. See figure one.

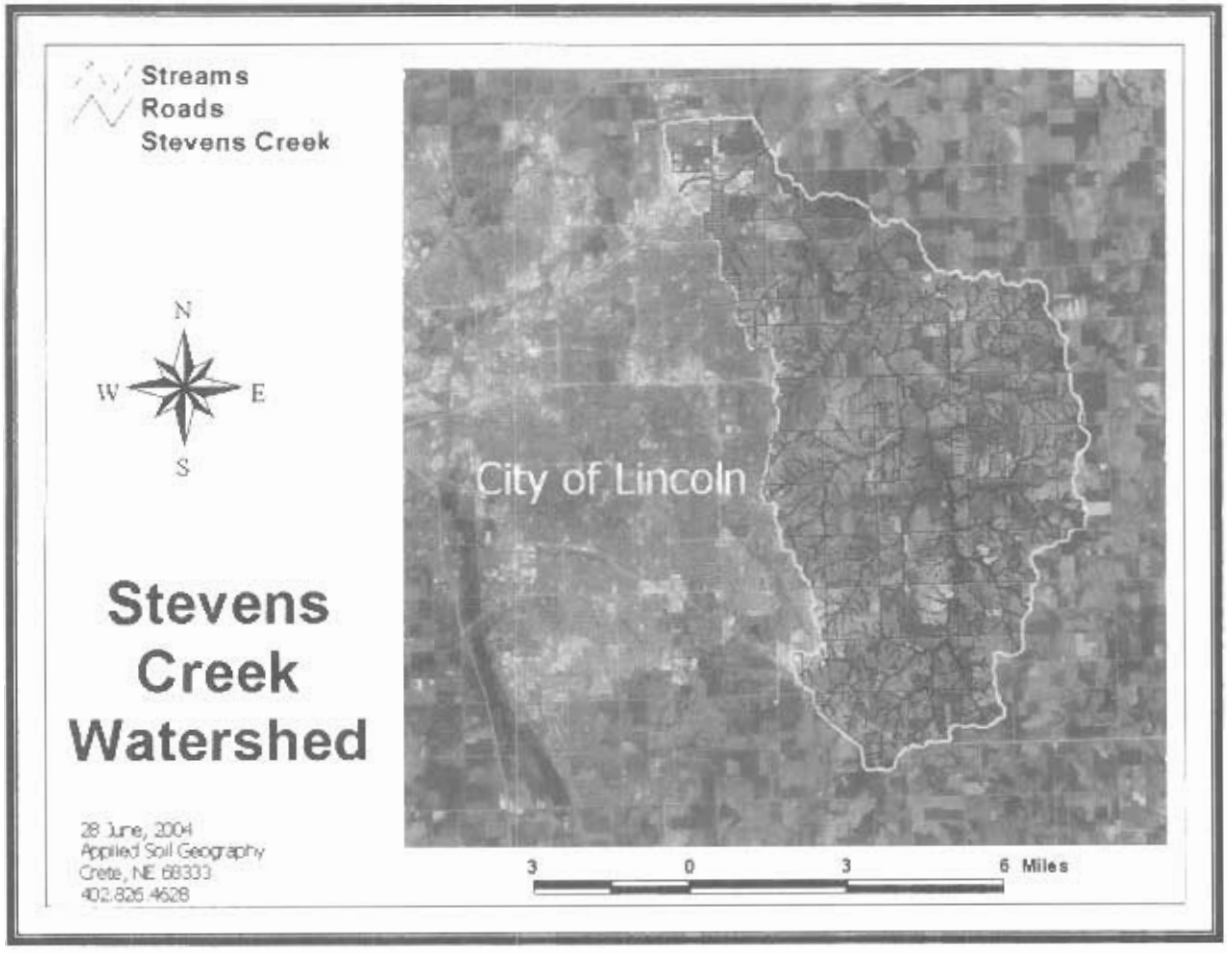


Figure one: Geographical location and boundary of Stevens Creek Watershed

The watersheds landscape is gently rolling to undulating and the soils are moderately to well-drained silt loams and silty clay loams. The majority of the watershed landuse is crop production but residential acreages and residential development are common. See figure two.

044

1.2. There are several conceivable effects or combination of effects on Stevens Creek watershed if the Minimum Flood Corridor as proposed in the Flood Standards for New Growth Areas is implemented. The first is a reduction in the area available for development. This impact will be greater in the northern part of the watershed and will have a lesser impact in the southern half.

Besides the impact on developable land, there is also the possibility that proven construction, land shaping, and community layout and densities will have to be altered to accommodate the proposed rule and subsequent set-a-sides. This seems to be a current issue but may not be material in the long run.

Figure two: General landscape and landuse of Stevens Creek Watershed

1.3. Within Stevens Creek there are two current and one potential surface water related development issues. These current issues are the FEMA Flood Zone and wetlands. The potential issue is the Minimum Flood Corridor. Collectively, the three makeup about 8,987 acres or about 14% of the watershed that will be impacted to some degree. The following is a breakdown of the hydrologic limitation currently in place on the watershed and those proposed through the new standard's rule.

1.3.1. FEMA Flood Zone Acres – about 3,920 acres or about 11.5% of the watershed. Figure three depicts the approximate FEMA flood zone within the watershed.

1.3.2. Wetland that may require mitigation – about 390 acres or about 1.2% of the watershed are identified in the National Wetlands Inventory. These designated

wetlands may require mitigation and restoration. These areas are small in size and scattered throughout the watershed. The average size of the wetlands is less then an acre but individually many be greater than 3 acres in some areas.

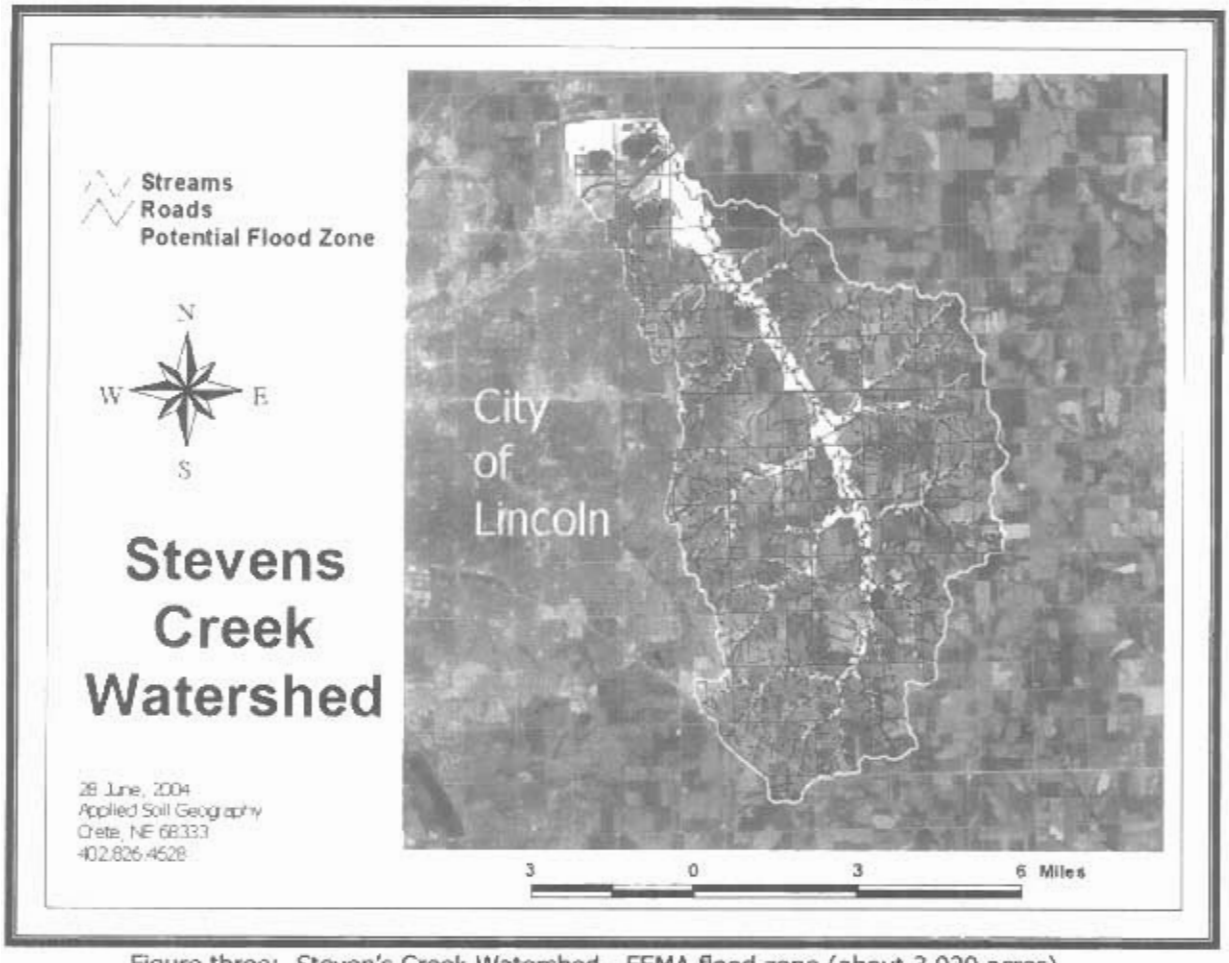


Figure three: Steven's Creek Watershed - FEMA flood zone (about 3,920 acres).

1.3.3. Areas affected by the "Proposed Flood Standards for New Growth Areas" Minimum Flood Corridor rules in Steven Creek are depicted in figure five and six. The area represented is about 5,790 acres of which 1,113 are in the FEMA Flood Zone and excluded from the final total. The area affected by the proposed standard was determined by applying a buffer around the watershed's drainage system.

For the purpose of this report, the size of the buffer was determined to be 140 feet wide. The determination of the buffer size was based on the criteria contained in the publication Proposed Flood Standards for New Growth Areas.[1] A field review of the watershed indicated that the average depth of the drainage channels is about 6 feet and the average width is about 60 feet. Using the formula in the publication the average Minimum Flood Corridor width for this analysis was set at 140 feet.

1.3.3.1. Breakdown of Minimum Flood Corridor area in the watershed:

1.3.3.1.1. Total area – 5,790 acres

1.3.3.1.2. In FEMA Flood Zone – 1,113 acres

1.3.3.1.3. Outside of FEMA Flood Zone 4,677

046

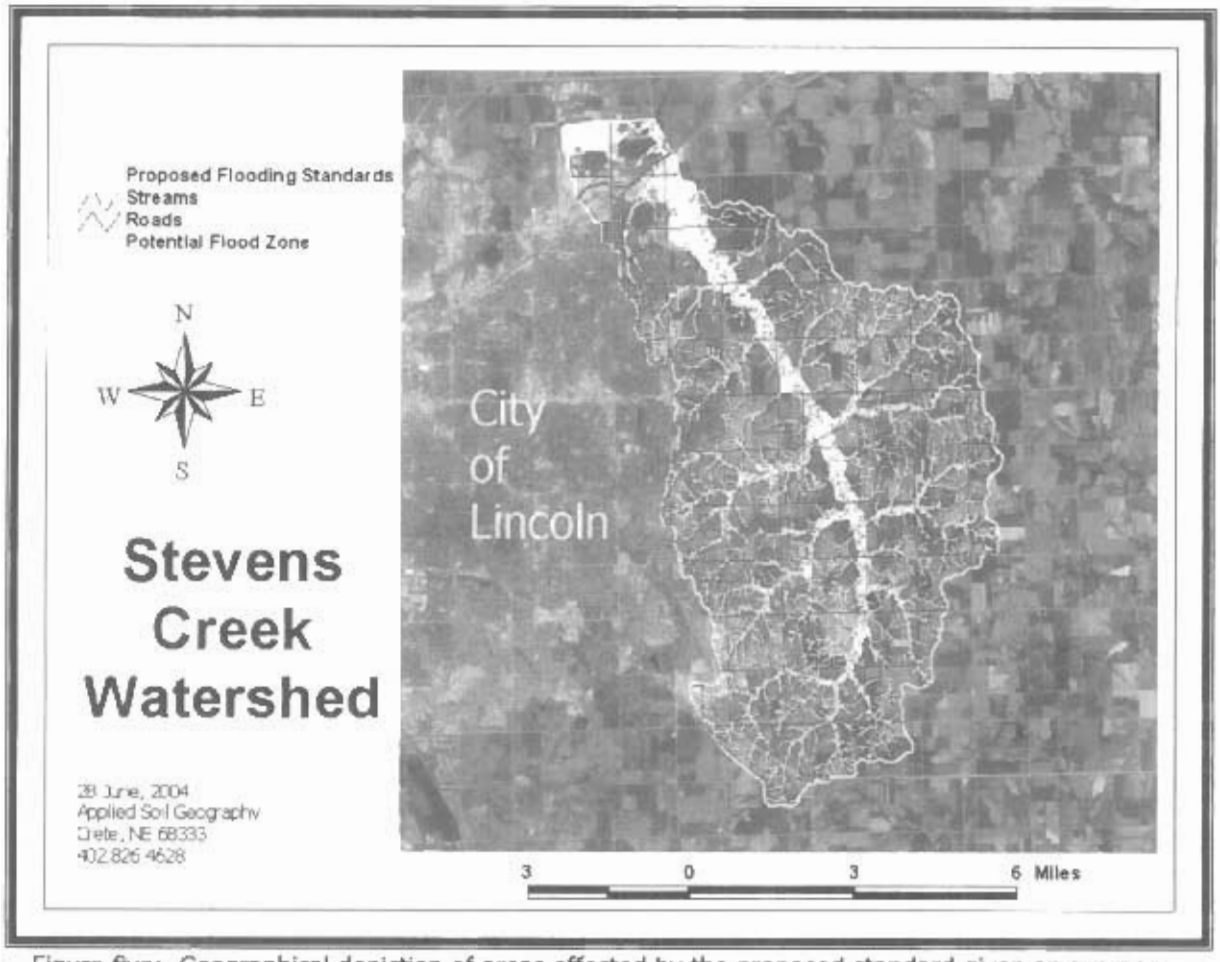


Figure five: Geographical depiction of areas effected by the proposed standard given an average width of 140 feet.

1.4. Discussion: There are tradeoffs with the implementation of any zoning or other restriction that affects the use of land. In this case, lose of developable land will cost the developer's investment dollars by decreasing the amount of land available for development and by increasing the cost of development. Cost of development increases because current practices and procedures used to develop an area will need significant review and revision in order to comply with the proposed rule. Changes in community design, land-shaping, and construction and installation of roads, utilities, storm drains, and other infrastructure will also be required to meet any constraints imposed by the implementation of the new rule.

This cost will be passed on to residential and business consumer in the form of higher land, infrastructure, and assessment costs. However, the aesthetic value of green space, trees, and wildlife afforded by the Minimum Flood Corridor and the mitigation of flood damage do add value to adjoining and adjacent properties which may or may not off-set the cost due to the Minimum Flood Corridor rules.

1.4.1. The results of this study are based on 2 assumptions. These assumptions are an average channel depth of 6 feet and an average channel width of 60 feet and were applied to all streams within the watershed. . These assumed channel dimensions were determined by measuring and observing the channels, streams, and creeks that make up the Stevens Creek watershed. In the lower reaches of the watershed the streams are deeper and wider and the Minimum Flood Corridor will be wider than 140 feet and in the upper reaches of the watershed the stream depth and width are generally less then the assumptions. For the watershed as a whole the information

presented in this report is representative. However, the assumptions are not applicable to sub-watersheds or any specific stream reach within the watershed. To understand the full impact of implementing the Minimum Flood Corridor rules, ***the minimum value for the two variables, channel depth and stream width, have to be defined and stipulated by the rule and a new analysis complete***. If and when the channel depth and width are stipulated during the rule making process, the flood corridor width can be more accurately represented and will vary from several hundred feet in the lower reaches of the watershed to 60 feet in the upper reaches. This difference in flood corridor width will have a lesser impact on the upper stream reaches in the southern part of the watershed and much greater impact on the lower stream reaches in the northern part of the watershed.

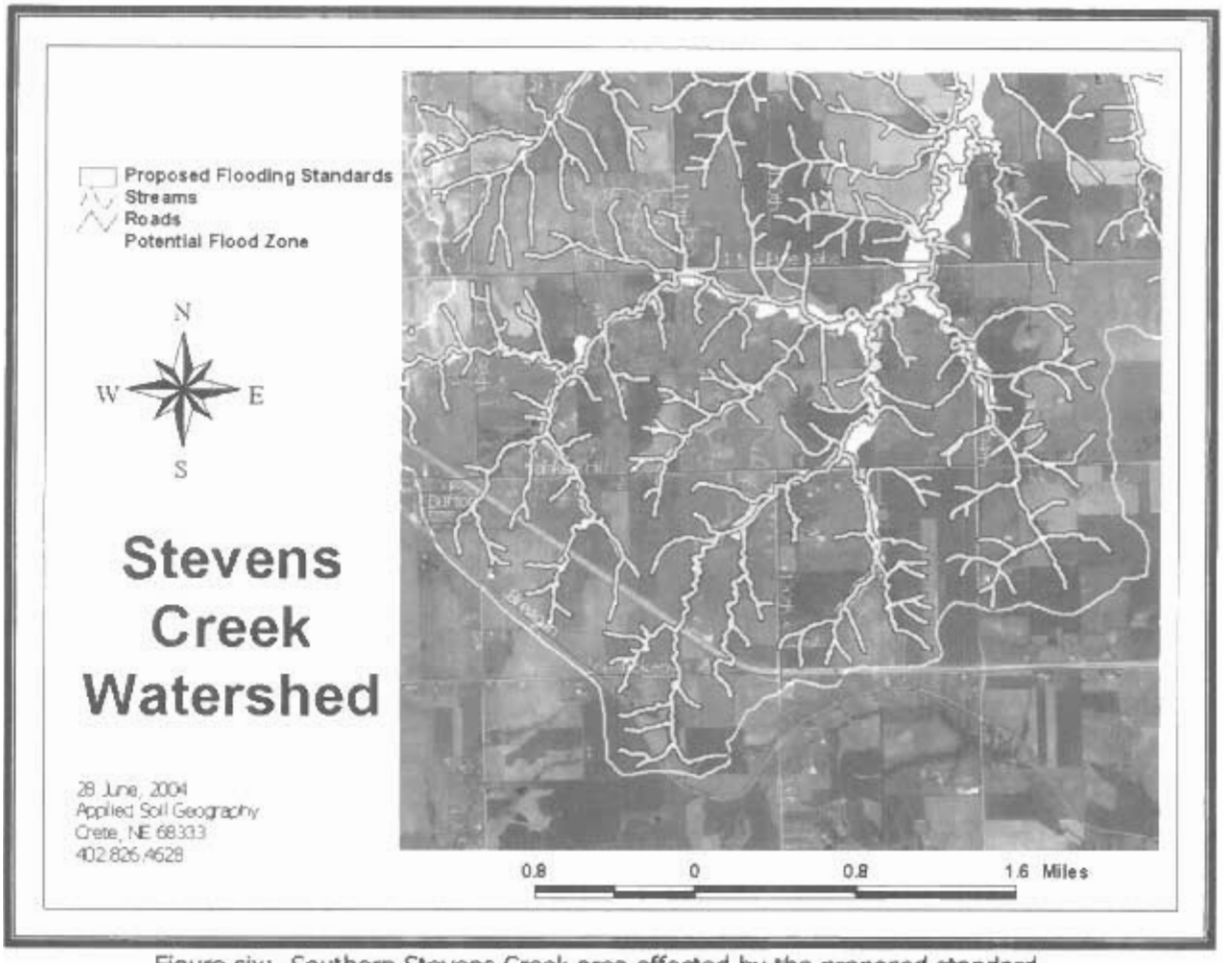


Figure six: Southern Stevens Creek area effected by the proposed standard.

1.4.2. The results of this study are based on 2 assumptions. These assumptions are an average channel depth of 6 feet and an average channel width of 60 feet and were applied to all streams within the watershed. . These assumed channel dimensions were determined by measuring and observing the channels, streams, and creeks that make up the Stevens Creek watershed. In the lower reaches of the watershed the streams are deeper and wider and the Minimum Flood Corridor will be wider than 140 feet and in the upper reaches of the watershed the stream depth and width are generally less then the assumptions. For the watershed as a whole the information presented in this report is representative. However, the assumptions are not applicable to sub-watersheds or any specific stream reach within the watershed. To understand

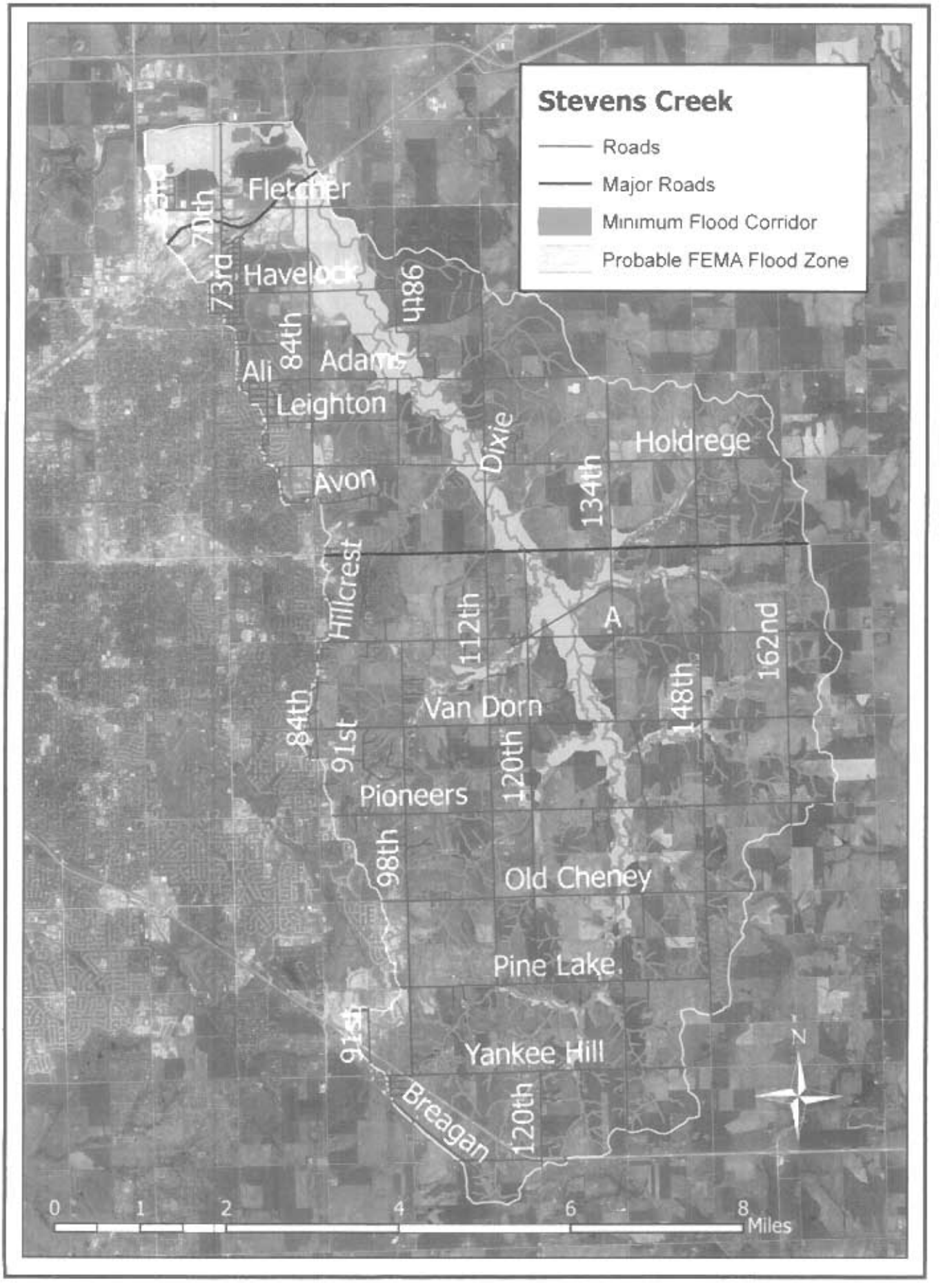
the full impact of implementing the Minimum Flood Corridor rules, ***the minimum value for the two variables, channel depth and stream width, have to be defined and stipulated by the rule and a new analysis complete.*** If and when the channel depth and width are stipulated, the flood corridor width can be more accurately represented and will vary from several hundred feet in the lower reaches of the watershed to slightly more than 60 feet in the upper reaches. This difference in flood corridor width will have a lesser impact on the upper stream reaches in the southern part of the watershed and much greater impact on the lower stream reaches in the northern part of the watershed.

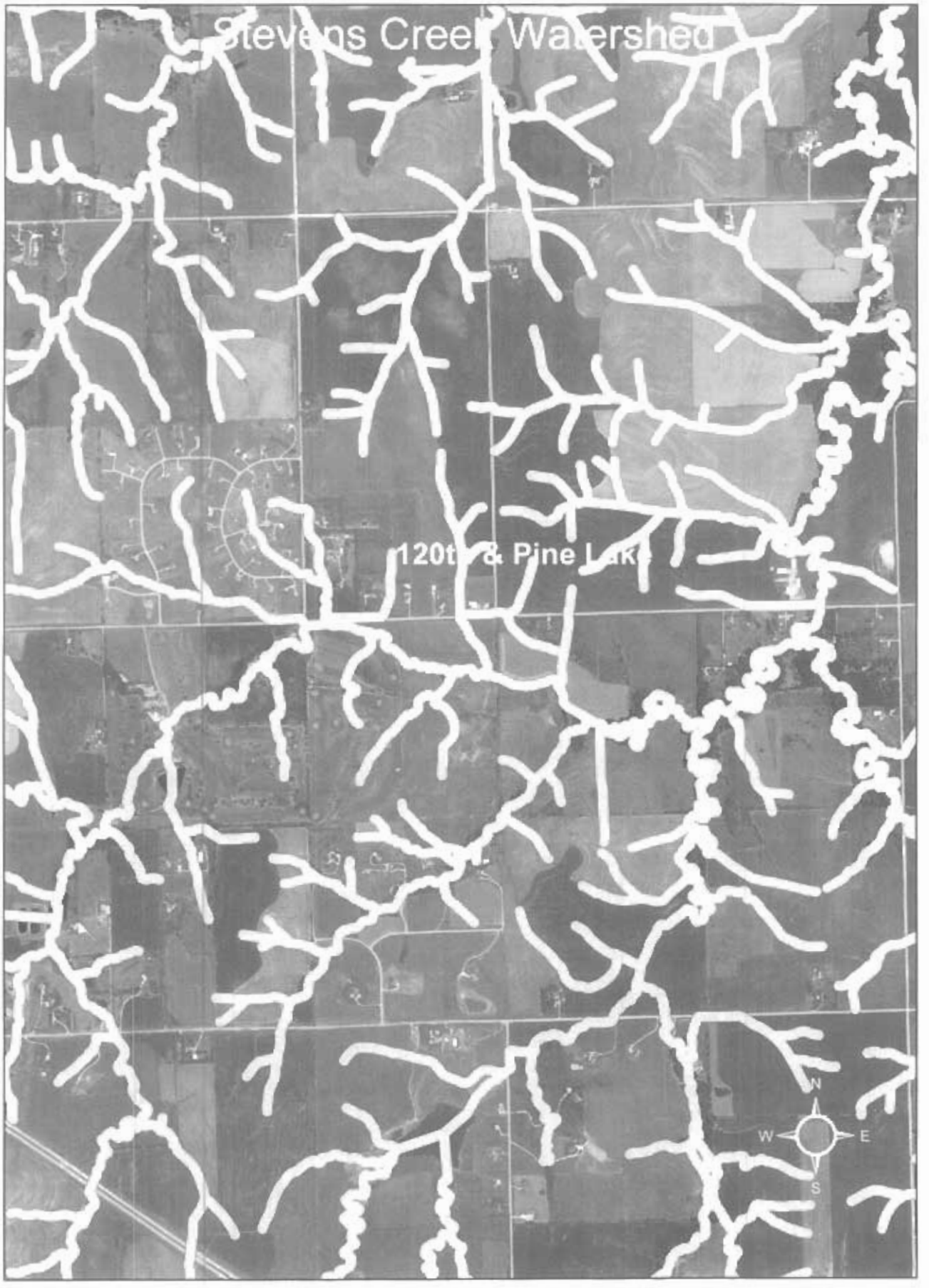
1.5. References:

1. Proposed Flood Standards for New Growth Areas, Citizen Information Center, Lincoln, NE April 2004.

1.6. Data Constraints: Although every effort has been made to ensure the accuracy of information; errors and conditions originating from the original source data may be reflected in the supporting data, analysis, and conclusions of this report.

Stevens Creek - Estimated Flood Corridor




Stevens Creek Watershed
120th & Pine Lake
N
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